IMPACT OF THE MEDICAID DRUG REBATE PROGRAM

ON EXPENDITURES, UTILIZATION AND ACCESS

Final Report

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EXECUTIVE SUMMARY

The Omnibus Budget Reconciliation Act of 1990 (OBRA 90) established a Medicaid drug rebate program. This program was enacted on November 5, 1990 and went into effect 54 days later on January 1, 1991. Specific provisions of the legislation included manufacturer rebates to Medicaid programs, general elimination of states' authority to use restrictive formularies, and some additional requirements for states' implementing prior authorization programs. At the end of 1994 the Medicaid drug rebate program had been in place for four years.

Evaluation of the Medicaid Drug Rebate Program

The overall purpose of this project was to assess the implementation and net impact of the Medicaid drug rebate legislation on access to, utilization of, and expenditures for prescribed drugs for the Medicaid population. This final report for this study addressed: the drug rebate program background and experience, a statement of the overall evaluation objectives, an overview of data sources and the evaluation framework, a descriptive analysis of aggregate trends, methods and findings of detailed state case studies, administrative impact case studies, and integration of study findings with a discussion of implications for policy and future research needs.

Project Objectives

The overall goal of this project was to assess the net impact of the Medicaid drug rebate legislation on access to, utilization of, and expenditures for drugs in the Medicaid population. The primary focus of the study was on change between 1990 (pre-OBRA 90) and 1992 (post-OBRA 90). Several specific research objectives were established to achieve this overall goal:

1. Describe and analyze trends in Medicaid drug program expenditures before and after the OBRA 90 legislation and identify factors contributing to those trends.

2. Document the amount of rebates accrued and collected and their impact on the total Medicaid drug expenditures.

3. Evaluate the overall impact on Medicaid drug expenditures of changes in access to drugs due to discontinuation of restrictive formularies, implementation or modification of prior authorization programs, provision of six months open access after FDA approval of a drug product, and other state drug program policies and characteristics.

4. Assess the impact of "open access" provisions (formulary discontinuation, six month mandatory coverage of products newly approved by FDA, and implementation or modification of prior authorization programs) on the number, mix, and cost of drugs used by Medicaid recipients.

5. Document the administrative costs and rebate program implementation experiences of HCFA and the state Medicaid programs, including both start-up costs and continued operation costs.

6. Determine the overall impact of the OBRA 90 legislation on net Medicaid drug expenditures, after accounting for the effect of rebates, changes in formulary and prior authorization programs, open access for newly approved drugs, and administrative costs.

Evaluation Overview and Limitations

The Medicaid drug rebate program is very complex and has been superimposed upon an already diverse environment of state Medicaid drug program policies. While it is not possible to enumerate all of the effects and repercussions of this national program on each state Medicaid program, the major effects can be isolated by identifying and controlling for some other known sources of variation. The impact of changes in the number and mix of Medicaid enrollees by eligibility type, changes in drug restrictions such as formularies and prior authorization programs, and changes in manufacturers' drug prices can be determined. Some sources of variation can be described and quantified for nearly all states, but other sources require an extensive analysis of drug program expenditures at the individual prescription level and were, therefore, only practical for those states which had standardized MSIS data files that included prescribed medicines. The administrative impact assessment of the Medicaid drug rebate program required direct input from state and federal Medicaid personnel through on-site and telephone interviews with selected states.

Three different sets of states were used for analysis in this project. First, the aggregate analysis of total Medicaid drug expenditures and rebates both at the national and state levels was performed using data derived from the HCFA Form 2082 reports by the states. One portion of this aggregate analysis examined a breakdown of expenditure and utilization data by basis of eligibility and medical assistance status for a subset of 27 states that had reported recipient and expenditure data broken down at this level for all years from 1988 to 1992. Aggregate rebate payments received were assessed using HCFA estimates drawn from HCFA Form 64 reports. In-depth state case studies of prescribed medicine use, cost and access were conducted on a selected set of nine states. One of these states (Kansas) had problems with enrollment data and was, therefore, left out of certain analyses. The third analytical set involved twelve states studied for the administrative impact of the rebate program.

Limitations of the study concern the databases available and the scope of the study. First, there were a number of limitations to the databases used in this study. For example, one of the original objectives of this study was assessment of changes in drug use rates as measured by days of therapy per recipient-year rather than number of prescriptions per recipient-year. This level of analysis was not possible, though, due to limitations of the Medicaid Statistical Information System (MSIS) other claims file which contains prescription claims. The quantity field for all prescription claims in this data set has been set to '1', meaning one prescription was provided. Prescription claims in most state databases, however, use the National Council for Prescription Drug Programs (NCPDP) uniform prescription claim form which, has the number of tablets, capsules, or milliliters in the quantity field allowing multiplication by a factor (e.g., units per day of therapy) to calculate the days of therapy provided by each prescription.

The Medicaid drug rebate program has had an impact on pharmaceutical manufacturers, other pharmaceutical purchasers, and many others. The scope of this study's objectives, however, was limited to assessment of the impact of the rebate program on state Medicaid agencies and the Health Care Financing Administration. The study did not attempt to analyze the experience of pharmaceutical manufacturers with the drug rebate program.

This study limited its evaluation to examination of the expenditures for, and utilization of, outpatient prescribed medicines. Prescribed medicines used in inpatient settings were not included in this study. Also, the effect of the rebate program and related program changes (e.g., discontinuation of restrictive formularies and continuation or implementation of prior authorization procedures) on use of, and expenditures for, all other types of health care services and outcomes (e.g., hospitalizations, physician visits, long term care use, or patient outcomes) was not evaluated by this project.

Background of Medicaid Drug Rebate Program

Historically, Medicaid programs have covered outpatient prescription drugs, even though such coverage is defined as optional by the authorizing legislation. The national aggregate of state Medicaid expenditures for prescribed drugs nearly doubled in the five year period from 1985 to 1990, growing from $2.3 billion to $4.4 billion (Pharmaceutical Benefits Under State Medical Assistance Programs; Reston, VA: National Pharmaceutical Council, 1986 to 1991 annual reports).

Prescribed drug expenditures under Medicaid had been rising at an average annual rate of 13.9% in the five years prior to the rebate legislation. Many state governments face severe budgetary problems, in general, and with Medicaid, in particular. Medicaid is typically the single largest payer for outpatient prescriptions within each state, yet this government program traditionally does not have access to the discounts and rebates often obtained by certain other buyers, such as hospitals or HMOs.

The primary goals of the rebate program were to allow Medicaid programs to achieve savings in drug program expenditures and to increase Medicaid beneficiary access to drugs. Savings of $3.4 billion dollars over the five year period, 1991 to 1995, were expected (Pollard, Michael R. and John M. Coster, "I. Legislation. Savings for Medicaid Drug Spending," Health Affairs, vol.10, no.2, Summer 1991, pp. 196-206). Congress requested that HCFA prepare quarterly and annual reports on the rebate program and that other provisions (i.e., drug utilization review) be evaluated to determine the cost impact of the legislation.

Implementation of the rebate program was accomplished through a complex partnership between the Health Care Financing Administration (HCFA), state Medicaid agencies, and pharmaceutical manufacturers. The OBRA 90 drug rebate legislation included a number of specific operational components including: (1) the minimum percentage component of the basic rebate; (2) the best price component of the basic rebate; (3) an inflation adjustment rebate; (4) a general prohibition of restrictive formularies; (5) open access to new drugs for 6 months after FDA approval (repealed after September 30, 1993); and (6) conditions for operation of prior authorization programs.

The rebate amount due to the Medicaid program was dependent upon: (1) the drug product type (i.e., single source (SS), innovator multiple source (IMS), and non-innovator multiple source (NMS)); (2) the average manufacturer price (AMP) for a specific product; and (3) the manufacturer's best price for the same product. Each of the participating manufacturers reports the required pricing data on a quarterly basis to HCFA. HCFA uses this information to compute a unit rebate amount (URA). This URA, linked to a unique drug product NDC number, is provided to the states on a data tape each quarter.

Each state determines the utilization volume of each specific drug product (i.e., for each NDC number, which specifies a certain drug entity, dosage form, strength, package size and type, and manufacturer or labeler) based on Medicaid paid claims data for the quarter. The URA times the number of units utilized results in the amount of rebate due for a specific drug product. If the manufacturer disagrees with the utilization data, a disputed claim may result. Disputed claims may lead to delayed payments and additional administrative costs for both the states and the manufacturer due to generation of specialized reports or audits to estimate or verify the utilization of a specific drug product.

National Aggregate Analysis of
Medicaid Drug Expenditures and Rebates

Medicaid Data Sources

Data for this overview has been drawn from three principal sources. First, state-specific and national aggregate data were drawn from the Health Care Financing Administration's (HCFA) Form 2082 and Form 64 reports. Second, additional Medicaid drug expenditure, enrollment, and pharmaceutical program data were extracted from the annual reports titled, *Pharmaceutical Benefits Under State Medical Assistance Programs* (Reston, VA: National Pharmaceutical Council, annual reports from 1975 to 1994). A third reference, used primarily as a source of information on Medicaid drug rebate trends, was the set of annual reports published by HCFA titled, *Report to Congress: Medicaid Drug Rebate Program (Health Care Financing Administration, 1992, 1993, and 1995).*

Medicaid Drug Expenditures and Rebates

Drug Expenditures. Drug and total medical expenditures for Medicaid increased about ten-fold between 1975 and 1993 in current year dollars. Medicaid drug expenditures in 1975 totaled $815 million and by 1993 had reached nearly $8 billion based on HCFA Form 2082 data (Figure 1 and Table 1). Drug payments grew from 5.4% to 7.8% of total medical expenditures between 1982 and 1993. Drug payments represented a larger share of Medicaid total vendor payments in 1993 than did physician payments at 7.8% and 6.8%, respectively.

Recent growth in total medical payments and drug payments has been particularly strong. Total medical payments in 1993 increased 109% since the 1988 payment level and more than 56% since 1990. Drug payments before rebates in 1993 represented an even more dramatic increase with 1993 payments 142% greater than in 1988 and 80% over the 1990 payment level.

Medicaid drug expenditures grew from $4.4 billion in FY 1990, the year before the rebate program, to $5.4 billion in FY 1991 and $6.8 billion in FY 1992, not accounting for rebates. The annual drug expenditure growth rates were 22.8% and 25.1%, respectively, in 1991 and 1992. These growth rates appear quite dramatic in comparison to the 13.9% average annual growth rate experienced between 1985 and 1990.

Before drawing any conclusions about the source of this growth in drug expenditures, however, it is important to point out that these expenditure figures have not been adjusted for rebate amounts (either billed or collected), the substantial expansion in the number of persons qualifying for Medicaid, or the effect of open formularies. In addition to establishing the drug rebate program, the OBRA 90 legislation expanded the eligibility criteria for Medicaid.

Recipients. The number of drug recipients under Medicaid grew from 17.3 million in 1990 to 19.6 million in 1991 (a 13.3% increase) and to 22.1 million in 1992 (a 12.8% increase). Between 1990 and 1992, the average annual growth rate in number of drug recipients was 12.9%. In contrast, during the five years from 1985 to 1990 the average annual growth rate in drug recipients was only 4.5%.

The number of persons eligible for Medicaid at any point in time is difficult to determine. The total number of persons receiving any type of medical assistance service during a given period can be used as a functional proxy for total eligibles. The number of total Medicaid recipients remained remarkably stable at 21 million to 23 million recipients per year during the period 1975 to 1988

(Figure 2). However, both total and drug recipients have expanded considerably in the last five years. Since 1988 the number of total Medicaid recipients has grown more than 42%, reaching 32.7 million recipients in 1993. The number of Medicaid drug recipients expanded slightly faster than total recipients, with the 23.9 million drug recipients in 1993 representing a 43% increase over the 15.3 million drug recipients in 1988 and a 29% increase over the 17.3 million drug recipients in 1990.

The expanded Medicaid population in the five-year period, 1988 to 1993, appears to be more likely to use prescribed medications than recipients previously enrolled. Drug recipients have grown as a percent of total medical assistance recipients. In 1988, 67% of total medical assistance recipients were drug recipients, and the percentage in 1993 grew to more than 73%.

Drug Expenditure per Recipient. Intensity indicators are not directly influenced by changes in the number of enrollees, because the focus is on expenditures or units of service per person. The intensity of drug expenditures per drug recipient has grown steadily over the past two decades. The drug expenditure per drug recipient was $57.58 per year in 1975, $128.97 in 1983, and $333.50 in 1993, representing an increase of nearly six-fold since 1975.

Drug use intensity is measured as prescriptions per drug recipient per year. During the last two decades this intensity measure has grown gradually. In 1975 the average Medicaid drug recipient used 12.4 prescriptions per year. By 1983, drug recipients were receiving 13.0 prescriptions per year, on average, and in 1993 they averaged 14.6 prescriptions annually.

Drug expenditures per drug recipient have been growing at a faster rate than the number of prescriptions per recipient, indicating that a major portion of the growth in drug expenditure intensity is coming from growth in payments per prescription rather than from the number of prescriptions used. The annual rate of change in drug expenditures per drug recipient in both current and constant dollars has routinely grown faster than the number of prescriptions per drug recipient per year.

The annual rate of change in drug expenditure intensity (drug expenditures per drug recipient per year) over the last decade has ranged from 8% to 12% increases. The drug use intensity had annual rates of change ranging from -3% to +3% over the last ten years. From 1988 to 1993 the drug use intensity for drug recipients has grown less than 1%. Increases in drug use intensity do not appear to be a major factor in the growth of prescription expenditures in recent years.

Drug Expenditures by Recipient Type. The drug expenditure levels in a Medicaid program can be influenced, not only by the growth in recipients, but also by changes in the mix of types of recipients. Certain types of Medicaid recipients utilize more prescription medications and health care services than others. A set of 27 states was found to have reported such a breakdown for every year from 1988 to 1992. These 27 states accounted for about 64% of national drug expenditures over this time period and were considered to be broadly representative. This analysis drew its data from the HCFA 2082 forms as reported in the annual editions of State Pharmaceutical Benefits Under Medical Assistance Programs (Reston, VA: National Pharmaceutical Council, various years).

Drug recipients and expenditures were grouped into four categories: aged, disabled and blind, AFDC-adult, and AFDC-child. All persons classified as other or unclassified were treated as missing for purposes of this examination. The AFDC-child group was found to be the largest group by number of recipients (46.7%), but they accounted for the smallest proportion (11.4%) of drug expenditures (Figure 3). AFDC-adults also accounted for a larger percent of recipients than expenditures. In contrast, the aged and those who are disabled/blind consumed a disproportionate share of the expenditures when compared with their share among recipients. The disabled and blind were only one-fifth of the recipients while consuming nearly one-half (46.2%) of drug expenditures.

The elderly Medicaid recipients represented 13.8% of the recipients and 30.1% of the drug expenditures. Similarly, the elderly represent about 12% of the overall United States population and account for over 34% of the outpatient drug expenditures (Joseph Thomas III and Stephen W. Schondelmeyer, *Report to Congress, Manufacturers' Price and Pharmacists' Charges for Prescription Drugs Used by the Elderly*, Health Care Financing Administration, Washington, DC, June 1990).

The number of recipients in the AFDC-adult and AFDC-child groups has been growing especially with the OBRA 90 mandated expansions as previously discussed. Despite the growth in number of the AFDC population, provision of drug therapy for these groups is relatively inexpensive compared to the cost of drug therapy for aged and disabled/blind recipients.

Not surprisingly the elderly and the disabled have a much higher annual drug expenditure rate per recipient than do the AFDC-adult or AFDC-child groups. In 1992 the average Medicaid elderly had drug expenditures of $721 as compared with only $205 for an AFDC-adult and $80 for an AFDC-child. (Figure 4). Drug expenditures per recipient increased steadily between 1988 and 1992 in all categories. For most recipient groups the expenditure rate has nearly doubled in the last five years. The aged had expenditures of $380 per person in 1988, which increased to $720 by 1992. Expenditures for AFDC children were $41 per year in 1988 and reached $80 by 1992. AFDC adults saw their expenditure level grow from $95 in 1988 to $205 in 1992.

Prescription and Drug Product Payments. Cost efficiency indicators are measures of expenditures or payments per unit of service. The primary efficiency factor for the Medicaid drug program is the expenditure per prescription. The average Medicaid payment per prescription in 1975 was $4.64. By 1983 the average prescription payment was $9.93, and it reached $22.35 in 1993 (Figure 5).

The average payment per prescription can be subdivided into two components: the drug product payment and the dispensing fee payment. The average payment for each of these components has grown in current year dollars. The dispensing fee payment grew from $2.18 in 1975 to $4.11 in 1993, less than a two-fold increase over this 18-year period. In contrast, the average drug product payment has grown from $2.46 per prescription in 1975 to $18.74 in 1993, more than a seven-fold growth in this period.

The average dispensing fee payment actually decreased in constant dollars (1993) from $5.84 in 1975 to $4.11 in 1993, representing a 30% decline in real dollar terms (Figure 6). At the same time, the average drug product payment grew in constant dollars (1993) from $5.69 in 1975 to $18.74 in 1993. This accounts for more than a three-fold growth of drug product payments in real dollar terms.

Impact of the Medicaid Drug Rebate Program

Each state bills manufacturers for rebates based on utilization data and the specified unit rebate amount (URA). The amount of the rebate is to be paid to the state within 38 days of the postmark date for the invoice. The amount of rebates collected by a state Medicaid program must be subtracted from the total drug expenditures in order to determine the net expenditures for the drug program. Most states, and HCFA, do not report drug program expenditures as an amount net of rebates. When drug expenditures are examined as an amount net of rebates, one gets a different perception of drug expenditure trends.

Rebate amounts that accrued to the Medicaid program in the first two calendar years (1991 and 1992) of operation totaled $1.35 billion (Figure 7 and Table 2). During the first two fiscal years (1991 and 1992) the drug rebate amounts accrued were 10.3% of the total Medicaid drug expenditures, $1.26 billion accrued in rebates compared to $12.2 billion spent on prescribed medicines (Health Care Financing Administration, Report to Congress: Medicaid Drug Rebate Program, annual reports, 1992 and 1993).

In fiscal year 1991 the rebate program had just begun. Rebates were first invoiced and collected during the third CY quarter of 1991 (fourth FY quarter), totaling about $110 million. During FY 1992, states reported collecting around $900 million in rebates (Figure 7 and Table 2). Rebate collections for FY 1993 reached about $1.41 billion. These rebate payments resulted in a 4.6% reduction in FY 1991 drug expenditures, a 13.0% reduction in FY 1992 drug expenditures, and a 17% reduction in FY 1993 drug expenditures.

The impact of the rebate payments on Medicaid drug expenditure trends was reviewed in several ways. First, the drug expenditure per drug recipient was calculated after subtraction of rebate amounts collected. Although the total drug expenditure per drug recipient in 1993 was $333.50, this figure falls to $274.37 when collected rebates are subtracted. When adjusted for inflation (1993 constant dollars), the 1993 drug expenditure ($274.37) net of collected rebates per drug recipient was less than the 1990 expenditure per drug recipient ($282.11) experienced three years earlier, and nearly as low as the 1989 amount of $269.53. In other words, the rebate program has resulted in the drug expenditure per drug recipient, in constant dollars, leveling off over the first three years of the program.

The national aggregate change in drug expenditure per drug recipient between 1990 and 1992, when adjusted for rebates collected and general inflation, was a 2.9% decrease. When this same factor was examined on a state-by-state basis, 29 states had a lower drug expenditure per drug recipient in 1992 than in 1990 (Figure 8). Four states, in particular, had very large increases in drug expenditures per drug recipient (adjusted for rebates and inflation) between 1990 and 1992: West Virginia (33.5%), Kentucky (33.3%), Missouri (29.2%), and Massachusetts (18.4%) (Figure 8).

When rebates collected per prescription were subtracted from the average prescription payment, the average prescription payment in 1993 decreased from $22.85 to $18.80 in current dollars, a 17.7% reduction. This lower prescription payment amount net of collected rebates means that Medicaid was paying less for the average prescription in 1993 than it paid in 1991 ($18.80 versus $18.88). After adjusting for inflation (1993 constant dollars), the average prescription payment less rebates collected in FY 1993 ($18.80) was less than the average Medicaid prescription payment experienced four years earlier in 1989 ($19.08).

Rebates accrued were found to average around 11% to 14% of total Medicaid drug expenditures in 1992 and 1993. On the surface this proportion appears low, but one must remember that total drug expenditures also include dispensing fee payments. These dispensing fee payments account for about 18% of the total drug expenditures. When dispensing fee payments are subtracted from total drug payments, the rebate amount rises to approximately 14% to 15% of the remaining drug product payment amount.

There are two general types of rebates and the amount of rebate due is a function of the type of drug product and the pricing practices of the manufacturer. The rebate types are: (1) the innovator (SS and IMS drug products) rebate which is (a) the larger of the *basic* rebate based on the minimum rebate percentage applicable for each quarter and year according to current legislative statute and the *best price* rebate which is difference between the AMP and the best price plus (b) an *additional*

(inflation adjustment) rebate if AMP has risen faster than the CPI-u; and (2) the non-innovator rebate (NMS or generic drug products) which is based on the applicable minimum rebate percentage (11%). Drug products have been classified by the rebate legislation as single source (SS; i.e., still protected by a patent or another form of market exclusivity), innovator multiple source (IMS; an original marketers product which now has one or more competitors on the market), and non-innovator multiple source (NMS; non-originator versions of products which have lost their exclusivity). A brief analysis was performed at the national level using information from HCFA estimates to describe the relative proportion of the total rebate amount that is derived from each of the following: the minimum rebate, the best price provision, the additional (inflation adjustment) rebate, and the minimum generic (NMS) rebate.

In the first two years of the program, the basic rebate amount was the minimum amount due for SS and IMS drugs. A rebate amount of 12.5% of the average manufacturer price (AMP) was due for SS and IMS drug products. During CY 1992, the basic rebate component contributed between $78 and $106 million per quarter which represented about 39% of the total rebates accrued (Figure 9 and Table 3). According to rebate program revisions contained in the Veterans Health Care Act of 1992 the minimum basic rebate was increased to 15.7% of AMP beginning with the fourth quarter of CY 1992 and continuing during CY 1993. For CY 1994 the minimum rebate percentage was set at 15.4%, for CY 1995 it was set at 15.2%, and after 1995 the minimum percentage will be 15.1%.

A best price rebate is due beyond the basic minimum rebate if the manufacturer sells the product at a lower price to any customer not exempted by either the original legislation or the Veterans Health Care Act of 1992. The best price rebate is the difference between the AMP and the best price. During the first two years of the program (1991 and 1992), the best price rebate was capped at no more the 25% and 50% of the AMP, respectively. In the first year of the rebate program the best price contributed $30 to $50 million per quarter in accrued rebates, or 28% of all rebates accrued. The 1992 contribution of the best price component increased to about 34% of rebates accrued which was $60 to $80 million per quarter (Figure 9 and Table 3).

The additional rebate was added as a means to neutralize the manufacturer's steadily increasing prices to the Medicaid program. This rebate applies to the SS and IMS drug, but not the NMS drugs. The rebate is calculated by comparing the rate of general inflation (as measured by the CPI-u) since October of 1990 with the rate of change in each drug product over the same time period. An additional rebate amount is due above and beyond the basic and best price rebates for each percentage point, or fraction thereof, by which the drug product inflation exceeded the general inflation rate. That is, if a drug's price had increased 12% cumulatively since October 1990 and the general inflation rate over that period was 6%, the manufacturer would owe an additional rebate of 6% of the AMP. The additional rebate has grown over time from 21% of the total accrued rebate in 1991 to 26% of the rebate amount accrued in 1992 (Figure 9 and Table 3). This inflation-adjustment rebate contributed $69 million in the fourth quarter of CY 1992 and is expected to continuously grow as a proportion of the total rebate over time due to the cumulative nature of its inflation index.

The non-innovator, or generic, rebate is due on all non-originator drug products. These NMS drug products are not subject to the best price or additional (inflation adjustment) rebates. The non-innovator rebate is set by a fixed, minimum percentage equal to 10% of the AMP from 1991 to 1993 and 11% of the AMP after 1993. The NMS rebate has contributed $2 to $3 million of accrued rebate per quarter. This NMS rebate amount represents about 1% of the total accrued rebates, and this percentage has been shrinking over time (Figure 9 and Table 3).

The basic rebate for SS and IMS drugs was increased from 12.5% to 15.7% of AMP in the fourth quarter of 1992 by the Veterans Health Care Act of 1992, as described earlier. This growth in the minimum percentage for the basic rebate can be seen in the rebate amounts over time with a jump in the basic rebate amount (less best price contribution) in the fourth quarter of CY 1992 (Figure 9 and Table 3). The NMS rebate had a scheduled, one time increase from 10% to 11% at the end of 1993, but otherwise is not expected to change without legislative action. The contribution of the best price to the rebate amount will vary depending upon pharmaceutical manufacturers' pricing practices to favored customers which are not exempt from the best price calculation, as described earlier. The additional (inflation adjustment) rebate has been growing both in amount and as a percentage of total rebates accrued. Since drug product prices have been growing to date, and are expected to continue growing, at or above the rate of general inflation (CPI-u, all items), the additional rebate should continue to grow in importance as a part of the total rebate amount.

Sources of Drug Expenditure Growth

The drug program expenditures (current dollars) increased 141.9% over the 5-year period (1988 to 1993) before accounting for rebates and 99.0% after adjustment for rebates accrued. When general inflation (21.9%) over this 5-year period is taken into account. the drug expenditures (1993 constant dollars) increased 98.5% before rebates and 63.3% after rebates.

The single largest factor contributing to the growth in drug expenditures between 1988 and 1993, before adjustments for inflation and rebates accrued, was payment amount per prescription for the drug product. This factor showed a 66.3% increase in current dollars and a 36.% growth in constant (1993) dollars. Close behind in growth rate for this 5-year period was the expansion of eligibles which resulted in a 55.9% jump in drug recipients. The growth of drug recipients does not change with adjustment for inflation or rebates, leaving this factor as the single largest factor contributing to growth in drug expenditures after other factors have been adjusted. Drug use intensity (number of prescriptions per person per year) grew by only 0.4% between 1988 and 1993 and, like drug recipients, this factor is not affected by adjustments for rebates or inflation. With adjustments for rebates accrued and general inflation (21.9% over the 5-year period), the average prescription payment grew 4.3% while the drug product payment grew by 6.9%, and the dispensing fee payment decreased 4.3% (Figure 10).

The relative contribution of each factor leading to growth in Medicaid drug expenditures from 1988 to 1993 can be estimated by determining the expenditure expected from change in that factor while holding each of the other factors constant over the five year period. The growth in number of drug recipients appeared to be the single largest growth factor over the past five years. If no growth had occurred in the number of eligibles or recipients (i.e., if drug recipients had remained at 15.9 million rather than growing to 23.9 million) the estimated drug expenditures in 1993 would have been $5.1 billion instead of $8.0 billion (Figure 11). The general inflation rate for this five-year period was about 22% (CPI-U all items). After factoring in this general inflation component, the 1993 drug expenditure would have been $4.2 billion in 1988 constant dollars, if all other factors remained constant. Finally, the rebates accrued from 1991 to 1993 would have further reduced the 1993 net Medicaid drug expenditure to about $3.1 billion in 1988 constant dollars.

In summary, more than one-half of the growth in drug expenditures between 1988 and 1993 was attributable to recipient growth, about one-fifth was due to general inflation, and nearly one-fourth was due to payments made to pharmaceutical manufacturers, through community pharmacies, which were later recovered by the states in the form of rebate payments.

State Case Studies: Based on Detailed Claims Analysis

Objectives

The primary focus of these case studies was on changes in drug expenditures before and after the Medicaid rebate program was implemented. The case studies used individual-level claims data to compare drug expenditures for two six-month observation periods before and after implementation of the rebate program in January 1991. The time periods chosen were from January through June in 1990 and the comparable period in 1992. Two states, however, had useable data for only one quarter in 1990. The post-rebate period was chosen to be one year after the rebate program initiation to allow for HCFA and the states to work through implementation issues.

The state case studies employed detailed person-level enrollment and utilization data and NDC-level drug product data. This enabled analysis of drug expenditures by therapeutic category, drug patent status, and Medicaid recipient eligibility type for each case study state.

The overall goal of this series of state-level case studies was to determine the relative contribution of various sources to changes in drug expenditures experienced after implementation of the Medicaid drug rebate program. Several specific objectives were addressed for each case study state. These objectives were:

(1)   Determine the change in drug claims and expenditures from 1990 to 1992.

(2)   Identify changes in the number and mix of enrollees from 1990 to 1992.

(3)   Examine changes in drug expenditures by drug patent status and therapeutic category from 1990 to 1992.

(4)   Estimate changes in drug expenditures after adjusting for enrollment growth and shifts in enrollee use rate from 1990 to 1992.

(5)   Calculate drug expenditures net of rebates in 1992 and the change from 1990 drug expenditures.

(6)   Assess changes in drug benefit restrictiveness due to formularies and prior authorization from 1990 to 1992.

(7)   Perform a decomposition analysis to determine the relative role of various factors contributing to change in Medicaid drug expenditures.

Methodology

From the list of states participating in HCFA's MSIS claims data system, several criteria were used to isolate the states for case study. These criteria included: (1) exclusion of states with significant capitated plan enrollment, especially if prescribed drug claims data was likely to be incomplete; (2) exclusion of states where there were a large number of state-specific drug codes that could not be matched to NDC codes; (3) exclusion of states with an unusually large proportion of adjustments to drug claims; and (4) inclusion of only those states with evidence of "believable" numbers of unique NDC codes for paid claims. Next, consideration was given to the size and policy differences among states. Both large and small states were desired in the study set to determine if the

size of a state differentially affected its change in expenditures. Also, states with different policy environments were sought in the study set. In particular, it was considered desirable to have states with differing levels of restrictions to drugs before and after OBRA 90. Subsequent to OBRA 90, some states became much less restrictive in the use of prescribed drug products (e.g., Missouri, which had a restrictive formulary until 1991), while other states maintained similar levels of restriction or became more restrictive (e.g., Arkansas imposed global limits on the number of prescriptions per recipient per month). Nine states were selected for the in-depth case study analysis: Arkansas, Georgia, Indiana, Iowa, Kansas, Missouri, New Hampshire, Utah, and Washington.

"Date of service" claims files and matching enrollment files for the study periods were developed. MSIS claims files are "date of payment" files, which means that they include claims paid in a certain time period regardless of when the service was provided. The claims files developed for this study by Mathematica Policy Research included claims for prescribed drugs which were dispensed during the study period. The enrollment files include only those individuals enrolled during any one or more of the study months.

The unit of analysis for these state-level MSIS case studies was the drug product line item or the NDC level. Each NDC represents a unique drug entity, dosage form, strength, package size, and manufacturer or labeler. All SS and IMS drugs were studied at the NDC level. NMS, or generic drugs, were aggregated so that all generically equivalent drug products, regardless of the manufacturer or labeler, were included in the same generic group. There are two major reasons why the NDC was chosen as the basic unit of analysis. First, Medicaid rebate utilization and unit rebate amounts are determined at the NDC level. Second, use of the NDC-level permits merging information about the drug (e.g., therapeutic class) to the expenditure and utilization files.

Change in Drug Expenditures
Before and After the Rebate Program

The total drug expenditures for case study state Medicaid programs between 1990 and 1992 grew by amounts ranging from 21% in Arkansas to 115% in Missouri. The influence of enrollment increases can be minimized by examining the expenditure per enrollee per year. Although Missouri had the lowest annualized expenditure per enrollee per year in 1990 ($192), this amount had grown to $338 by 1992. This 76% increase was the highest of any study state. Georgia actually experienced a decrease in expenditure per enrollee and Arkansas held essentially even between 1990 and 1992. Missouri's dramatic increase in drug expenditures after OBRA 90 was associated with a substantial decrease in pharmacy benefit restrictions, especially elimination of a fairly restrictive formulary and discontinuation of a monthly limit on prescriptions per recipient. In contrast, Georgia and Arkansas instituted new restrictions after OBRA 90 including monthly prescription limits and addition of a number of drugs to their prior authorization programs.

The amount of change in drug expenditures after rebates varied widely across states, while the rebate amount as a percentage of drug expenditures was relatively stable. This observation would suggest that the amount of variation in expenditure increases is independent of the rebate amount. Drug expenditures in 1990 were compared with 1992 drug expenditures, with 1992 drug expenditures minus rebates, and with 1992 expenditures minus rebates and adjustment for changes in enrollment. After adjusting for rebates and enrollment growth, seven of the eight useable case study states had less than a 7% increase in expenditures over the two year period. For these seven states, this increase is equal to, or less than, the general rate of inflation.

A central question raised by the elimination of restrictive formularies, as mandated by OBRA 90, is how much any induced changes in utilization offset the benefits of rebate payments. This question is complicated by the numerous other changes driving shifts in utilization patterns. These other changes include: (1) changes in the size and composition of Medicaid enrollment, (2) underlying trends in the introduction of new drugs, (3) shifts in other state regulations such as the imposition, or removal, of monthly prescription limits, and (4) creation of new NDCs that reflect duplicate listings by the same manufacturer and identical versions of existing products with different prices. Untangling all of these possible factors within the resources available to this project was impossible, but a measure of differences among states was constructed to indicate the degree to which change in utilization and expenditures were offset by the benefits of rebate payments.

One effectiveness measure that can be calculated to assess the impact of the rebate program is the ratio of rebate payments accrued divided by the additional dollars of drug expenditures from changes in utilization. Both figures (rebates and expenditures) were adjusted to remove the effect of the often dramatic changes in enrollment, by multiplying expenditures per enrollee in 1992 times 1990 enrollment in each of four enrollment categories. A ratio above 1.0 indicates that the state received more rebate payments than it spent in additional dollars because of changes in utilization. The first ratio (Table 4, Line II.a.) considers expenditures from all additional utilization; the second ratio (Table 4, Line II.b.) assumes that most, if not all, of the new NDCs (truly new drugs) would have been covered under the pre-1991 formularies and were therefore excluded from this indicator of induced changes in utilization. If the full amount of change in utilization is considered, all states except Missouri gained from the rebate program. Four of the states had modest gains -- between 47 and 93 cents per dollar of additional rebates beyond the expenditures generated by changes in utilization patterns (Table 4 and Figure 12). Arkansas and Georgia did remarkably well under the rebate program, but also instituted substantial increases in drug benefit restrictions in the post-OBRA 90 period. The monthly restrictions on number of prescriptions per recipient and the prior authorization programs apparently have had a major impact in curtailing utilization in these states. In contrast to the increased restrictiveness of these two states, Missouri's essential deregulation of the pharmacy benefit produced a sharply differing net increase concurrent with implementation of the drug rebate program and other OBRA 90 provisions.

A much closer analysis NDC by NDC would be required to investigate the degree to which changes in regulatory status correlate with changes in utilization. Moreover, the results are quite sensitive to the assumptions made about the impact of enrollment changes on expenditures.

Decomposition of Factors
Contributing to Drug Expenditure Changes

Changes in total prescribed drug expenditures are dependent on a number of factors. The detailed claims data were used to calculate independently the change due to each of the following: drug expenditures net of rebates, drug product prices (Laspeyre's Index), changes in number of users per 1,000 enrollees, changes in numbers of prescriptions per user (intensity), and enrollment changes. This decomposition of relative composition was performed only on the set of drug products (NDCs) used in both years (i.e., 1990 and 1992).

The independent contributions of these factors in each state, as well as the aggregate changes in total drug expenditures and drug expenditures net of rebates have been calculated. The lowest aggregate increase in expenditures before rebates were considered was observed in Arkansas (9.4%) and the greatest increase in Missouri (72.3%) (Table 5 and Table 6). Net of rebates, Arkansas had a decline in expenditures, while other states displayed modest increases ranging from 1% (Georgia) to 36% (Missouri). Examining the components of the Arkansas experience indicates that a decline in

number of users per 1,000 enrollees contributed greatly to the expenditure change; in fact, total expenditures rose at a lower rate than total enrollment for Arkansas between the 1990 and 1992 study periods of those drugs used during both periods.

Drug product price indexes independently contributed from 11.3% to 21.4% increases in drug expenditures, among the eight states examined. These price indexes were computed before considering the effect of rebates on lowering effective prices. There appears to be a good degree of consistency from state to state in drug product price increases. Given that these figures were determined by weighting each NDC's utilization, the differences in drug product mix will contribute to some differences in the price index values from state to state. Seven of the eight states examined displayed price index changes ranging from 11% to 16%, over the two-year period examined.

The pattern revealed by the decomposition analysis is relatively clear. Enrollment effects were substantial in each of the states examined, with some variation in the magnitude of the effect but all states had in excess of a 10% aggregate rise. Number of prescriptions per user had a relatively insignificant effect, except in Missouri, with less than 5% change up or down over the two years in all other states. Drug product prices (weighted by NDC use and expressed as an index) rose in all states, but are likely to have been ameliorated by the effect of rebates not taken into account here with respect to effect on drug product prices. A few states (Missouri, Arkansas, Georgia) displayed more marked changes than others in the number of prescribed drug users per 1,000 enrolled, which is most likely due to changes in the types of restrictions (formularies removed, prior authorization expanded or imposed, and monthly prescription limits imposed or removed).

Change in Drug Expenditure by
Therapeutic Category

One basis for grouping drugs is by therapeutic category. A hybrid therapeutic category coding scheme with 48 categories was developed for this project using therapeutic coding schemes resident within the First DataBank's Master Drug Data File. The percentage of total drug expenditures consumed by each therapeutic category was calculated. Expenditure patterns for Arkansas and Missouri were examined to illustrate expenditure differences across therapeutic categories. The H2 anti-ulcer drugs were the largest category in both states and accounted for more than 10% of expenditures in 1992. Calcium channel blockers were ranked second in expenditures by therapeutic class in both states.

A second set of figures by therapeutic categories displays the percentage change in drug expenditures between 1990 and 1992. The first striking observation is that certain categories in Missouri increased by as much as 400% to 900%. In general, these categories included drugs that had been restricted by the formulary prior to OBRA 90 and which were now openly available to Medicaid recipients. More than one-half (28 of 48) of the therapeutic categories doubled in drug expenditures, and all therapeutic categories had an increase in drug expenditures in 1992 over 1990. In contrast, Arkansas actually had a decrease in expenditures for about one-fourth of the therapeutic categories.

When the change in drug expenditures was adjusted by subtracting rebates, Missouri still experienced an increase in expenditures for all but one therapeutic category (insulin). About one-half of the categories in Arkansas decreased in expenditure after accounting for rebates. A curious finding was that the therapeutic category (biologicals) with the greatest increase in Missouri was the category with the greatest decrease in Arkansas. In both states, however, biologicals were one of the smallest therapeutic categories by total drug expenditures.

The final perspective on therapeutic category by state was a look at the rebate amount as a percent of total expenditures. In both Missouri and Arkansas state-level case studies the top three categories included oral contraceptives, insulins, and estrogenic agents. Rebates ranged from 33% to 50% of the total drug expenditures for these therapeutic categories in Arkansas (Figure 13). The overall rebate amount calculated was 18% of expenditures for Arkansas and 21% for Missouri. Rebate amounts expressed as a percent of total drug expenditures appear to be fairly similar across states despite considerable variation in the drug program policies of the individual states.

Change in Number of NDCs and
Growth of Repackagers

Even though the total number of prescription-related NDCs decreased between 1990 and 1992 from 64,671 to 58,930, there was a dramatic growth in the number of single source NDCs over the same period (3,578 to 6,073). This number of new single source NDCs appears to be far beyond what would be expected from new drug approvals by the FDA. Each year about 20 to 40 new drug entities are approved for marketing and several hundred new drug products including different strengths and dosage forms enter the market as single source products. The jump of single source drug products by nearly 2,500 NDCs in two years seemed unusual. After examining the products accounting for this growth at the NDC level, a large proportion (1,254 of the 2,495 additional SS NDCs) of these products were found to be relabeled or repackaged single source products.

A repackaged single source product is one which still bears the originators trade name, so that the originator appears to have given at least implicit approval of the re-marketing of its product; otherwise, the drug company would have pursued trademark infringement against the re-labeler. The repackager applies for, and obtains, a new and separate NDC for its relabeled version of the originator drug product. At the same time the repackager can also set the list price and directly, or at least indirectly, the average wholesale price (AWP) for the product. Many repackaged products were found to have significantly higher AWPs per unit than the originator product, ranging from 5% increase to as much as a 500% increase. These same SS NDCs probably also have higher AMPs. By the end of 1994, single source repackaged products have grown to represent one-third of all SS NDCs. The implications of this repackaging practice on the rebate program warrant further exploration. That is, are these products being used in the Medicaid program? How does this practice affect the rebate amount? Is the higher price more than enough to offset the benefit of the rebate paid?

Access and Measures of
Drug Restrictiveness

One of the trade-offs made in drafting the OBRA 90 legislation, which established the rebate program, was the prohibition of restrictive formularies. Some states responded to this change by using other approaches (i.e., prior authorization) to manage the pharmacy benefit program, while other states simply deregulated access to prescriptions under the Medicaid program. Drugs may be excluded from coverage by Medicaid, even after OBRA 90, based on a list of exclusions specified in the legislation. OBRA 90 contained other provisions, besides rebates, relevant to state decisions on prescribed drug coverage that were intended to expand recipient access to drug products:

(1) State formularies needed to include drugs covered by valid rebate agreements, if used for medically accepted purposes;

(2) Drugs newly approved by the FDA were to be covered for at least six months without formulary restriction; and

(3) Drugs could be subject to prior authorization, provided that a response needed to be made to requests for prior authorization within 24 hours and emergency supplies of 72-hours therapy could be dispensed, if necessary.

For this analysis a restrictiveness index was created to determine the relative change in access to drug products over time due to formularies, prior authorization, or other coverage rules. The Medicaid coverage restrictiveness index is a scale from 1 to 100. A value of 100 indicates the theoretical condition in which 100% of the marketed drug products are restricted or not covered. Conversely, a value of 1 indicates that virtually all of the marketed drug products are available without restriction.

For each of the case study states, the First DataBank Medicaid Drug File contained information on formulary status, coverage status, prior authorization, other coverage codes, and maximum allowable cost amounts for generic products. The 1992 coverage restrictiveness index was adjusted to account for NDCs not covered due to lack of a manufacturer rebate agreement with HCFA. The Medicaid coverage restrictiveness index method was applied to the First DataBank file for each of the case study states. For the 1990 period several states had virtually no restrictions; i.e., Indiana had a score of 3 and New Hampshire had a score of 2 (Figure 14 and Table 7). In contrast, other states had many restrictions such as a score of 67 for Missouri, meaning that nearly two-thirds (at the NDC level) of the drug products were not reimbursed by the Missouri Medicaid program prior to OBRA 90. Georgia had a similarly restrictive formulary with a coverage restrictiveness score of 64 in 1990. A state whose restrictiveness index decreases from a higher number to a lower number is a state where the access to prescribed drugs has become less restrictive, at least in terms of formulary restrictions. The coverage restrictiveness index in Missouri, for example, changes from 67 (very restrictive) in 1990 to 9 (very unrestricted) in 1992. A change in the other direction was experienced by Indiana which had a coverage restrictiveness index score of 3 in 1990 and 6 in 1992 which means that access to drugs become slightly more restrictive.

Administrative Costs of the Rebate Program

The drug rebate program was an incremental policy change superimposed upon existing state drug benefit policies. As such, the manner in which the program was integrated into agencies varied, dependent upon state Medicaid program organizational characteristics. In this analysis the implementation experience of twelve selected states with the rebate program was examined. Difficulties experienced with the program and factors favorable for implementation were identified. Also, estimates of the cost of implementation and operation of the drug rebate program were developed.

Methodology

Twelve states were selected for interviews. These states ranged in Medicaid program size, ranked by total Medicaid claims expenditures for all services, from #2 (California) to #46 (Vermont), providing a good range in terms of total expenditures. The selection process was a non-random one, and thus, caution should be exercised in attempts to generalize the findings to all states. Three states

were selected for site visits and interviews were conducted during April and May of 1994, and telephone interviews with the other nine states were conducted during July and August of 1994. Structured interview protocols were used in all cases. Medicaid program staff were also encouraged to raise any issues relevant to implementing and operating the program that were important but not addressed by the specific questions. Additionally, cost data collection forms were developed and delivered to each of the states participating in the telephone interviews, in order to facilitate the collection of cost data. Care was taken to include in the documentation of interviews only information provided by those interviewed, rather than subjective impressions of the interviewers. In most states, the needed information was provided by Medicaid outpatient drug benefit program managers. In a few states, this information was augmented as needed by discussions with state Medicaid directors, financial managers, or contractual claims processors.

Rebate Program Implementation

As mentioned earlier, HCFA had only 54 days from enactment to the effective date for beginning the Medicaid drug rebate program and other OBRA 90 provisions. A HCFA rebate program telephone hotline was developed early during implementation, so that manufacturers, state rebate program directors, and others concerned could have ready access to HCFA personnel. The hotline was reported to have received a massive number of calls in the early stages of the program, since all participants were attempting to decipher the program and plan their portions of it at once. The use of the hotline, in conjunction with the advisory groups formed to provide consultation to HCFA, facilitated the communications process as the program developed. HCFA also used a selected group of state pharmaceutical program directors to form a technical advisory group (TAG), convened by conference calls, that could identify and address implementation problems.

One of the most frequently mentioned problems by the states was reconciling rebate amounts due with manufacturers. Differences in utilization estimates can occur for a variety of reasons including: (1) claims billing problems with pharmacies that are not detected by system edits, including differing use of unit types by pharmacies; (2) manufacturers' attempts to verify Medicaid utilization data using non-Medicaid specific proprietary data sources; and (3) drug coding errors made as prescriptions are filled. A manufacturer would typically attempt to verify Medicaid utilization figures using their own records on product sales to wholesalers in a state, or according to surveys of pharmacies carried out by third parties, but that were not comprehensive in scope. Some of the problems mentioned with such data sources were:

* Pharmacies may purchase drugs from out-of-state wholesalers or have their own out-of-state warehouses, then sell prescriptions to in-state Medicaid recipients;

* Manufacturers who use their in-state wholesaler data multiplied by the aggregate Medicaid market share in a state would not adequately reflect the variation for specific product market shares;

* Nursing homes may purchase prescription drugs from out-of-state pharmacies; and

* Surveys of pharmacies conducted by proprietary sources typically do not include pharmacies that specialize in nursing home prescriptions, and so may underestimate these sales.

State Resources and Staffing
Related to the Rebate Program

This analysis sought to determine the effects of the rebate program and related aspects of OBRA 90 on administration of prescription drug benefits, including effects on staffing patterns and organizational structures. Prior to OBRA 90, drug benefit policies were administered in most states by a few staff members. In most states, the person in charge of the drug benefit program was a pharmacist, who may or may not have had assistants. Where prior authorization programs were present, these were generally administered by additional state personnel or by contract personnel, usually with pharmacy backgrounds.

Of the nine states interviewed by telephone, one reported an increase in Medicaid prescription drug program staff by three full-time persons after OBRA 90. These three staff members were originally hired in order to decrease prior authorization response time to the specified limit of 24 hours. After the Medicaid agency later decided to operate the prior authorization program by contractual arrangement, the state staff were retained for the drug unit and re-assigned to tracking rebates received. One other state reported substantially increasing its contract staff available to the Medicaid prescription drug program in order to administer rebates. The seven remaining states interviewed by telephone made few drug program staffing changes as a result of OBRA 90, beyond minimal changes to fiscal agent contracts in order to develop needed utilization data and invoices. States interviewed during site visits reported hiring freezes; and they described in depth how difficult it was to obtain approval to hire staff through the Medicaid program. To have increased rebate program staff would have been perceived as "expanding state government". Developing outside contracts to handle new functions was reported as far easier for state administrators in terms of obtaining needed approval, because the contract services were considered qualitatively different from hiring actual employees. The cost of contractual services did not appear necessarily lower than that for state employees, however.

State Policy Issues for
the Rebate Program

State Medicaid program administrators were faced with four main policy issues associated with the implementation of the drug rebate program. First, they needed to restructure drug benefit programs to be in compliance with OBRA 90 mandates and communicate changes to practitioners. Second, they had to modify information systems to collect, assemble, and report the data needed to compute and send invoices on rebates. Third, they developed ways to work with manufacturers in order to collect rebates. Fourth, they needed to address their state administrative requirements, including development of rules and regulations on the program. Each of these major policy issues and the strategies adopted by states to implement them is described below.

Six of the twelve states interviewed for the administrative impact analyses reported having had restrictive formularies in 1990. These states were: Arkansas, California, Georgia, Kansas, Missouri, and Ohio. One of the research questions to be considered is: To what extent were existing formularies converted to extensive or expanded prior authorization programs? Also, what effect did any changes in drug coverage (or access) have on utilization and expenditures? The states in this study were reviewed for the pre- and post-OBRA periods to determine the presence of restrictive formularies, status and extensiveness of prior authorization programs, and other restrictions on prescription drug benefits. Interviews with these states covered prior authorization programs in depth, including any changes made to those programs after OBRA 90. Prior authorization (PA) programs were apparently not greatly expanded due to OBRA 90, even when formularies were discontinued. The only state interviewed (Iowa) that reported expanding its prior authorization program substantially had no formulary

prior to the legislation, and this expansion was part of overall cost containment efforts by the state Medicaid program. Another state, California, had made substantial modifications to its formulary and developed an extensive prior authorization program at about the same time as the rebate program was implemented, but reported in its interview that these changes were made in 1990 prior to OBRA 90 enactment.

The degree of restructuring needed for drug benefit programs depended upon each state's coverage policies prior to OBRA 90 and how similar these were to features allowed under the legislation. For many states, the OBRA 90 mandates provided few changes, but in other states the mandates required extensive changes. While states had developed their coverage policies, including formularies and prior authorization programs, over a period of many years, the OBRA 90 legislation required them to adopt new policies in a matter of months. Communicating changes in policies to physicians and pharmacists in the state was not a minor task. The potential existed for some Medicaid programs and providers to be confused by the changes in policy, leaving them uncertain as to which drugs could be covered under the program. Ideally, the phase-in schedule for the program would have allowed for the coverage changes to be completed and then communicated to providers over a period of months. The actual schedule required states to make many coverage changes retroactive for various periods of time.

The second major policy issue at the state Medicaid level centered on the development of administrative information systems for rebate data. While all of the state management information system programs had been designed to adjudicate claims and conduct some utilization review functions, these systems were modified to collect the data needed for OBRA 90. Modifications needed were not extensive in most cases. Manufacturers did not pay some invoices, but did not always provide explanations as to why they did so. States then needed to determine, through telephone calls and other means, which bills went unpaid and why. Additionally, some states faithfully computed the differential federal shares they owed from rebates for contraceptive products (90% federal share of payments and rebates) and other drug products, but other states may have overlooked this.

The third major policy issue related to the ways in which state staff and manufacturers worked together to resolve difficulties with the program. A great deal of time and effort was devoted to communications, including phone calls and letters, between Medicaid administrators and pharmaceutical manufacturers, trying to clarify amounts of products utilized and invoiced. In some cases, state staff considered manufacturers to be helpful in terms of resolving questions, while in other cases, those interviewed felt that some manufacturers purposely obfuscated the issues in order to delay progress. This issue, involving the development of methods for effectively communicating accurate information both to manufacturers whose products have been used, and back again to the Medicaid agency that is owed the rebates, became a major implementation obstacle to efficiently operating the program.

The fourth major policy issue related to state agencies' needs to develop and disseminate state-level rules and regulations on the program. In some states, this was a relatively straightforward process, since the program had a federal mandate and could be automatically adopted. In other states, the regulatory structure of the state was such that public hearings had to be conducted, regulations needed to be published and could only be published according to a restrictive time schedule, and the like. Most states could not clarify their program requirements and regulations until guidance was received from HCFA on program characteristics. However, HCFA staff were in the midst of determining program requirements at the same point that states needed to be defining their rules, due to the short time schedule.

In general, the states reporting the fewest problems with operating the rebate program and with verifying drug utilization levels were the larger states which had more program staff and strong existing programs for auditing pharmacy claims and generating pharmacy-specific reports on utilization. Obstacles to implementation included: difficulties with claims processors in handling the program or in their ability to develop pharmacy and NDC-specific data on request; information systems needing substantial changes or improvements in order to create the type of data needed for claims verification; a lack of effective, standardized procedures for verifying data questioned by manufacturers; the need to relinquish formularies, a reluctance to develop intensive prior authorization programs, due mainly to cost considerations; and a very short time frame to develop the program and resolve issues.

**State Administrative Costs
for the Rebate Program**

States included in the administrative impact interviews were asked to provide data on administrative costs of establishing and maintaining the drug rebate program. Only limited data on the costs of operating the rebate program have been collected by HCFA.

As drug benefit program directors had explained, most states had few resources available to operate the rebate program. This description was largely confirmed by the expenditure information submitted. Values are reported in aggregate for each of the three full years (1991, 1992, 1993) of rebate program operations, and in aggregate for the three-year average costs of each state. From 1991 to 1993, mean costs for the twelve states grew slightly from about $93,000 to about $123,000 per state, on average, with the median cost in each of the three years being between $50,000 and $90,000. The mean program cost was substantially higher than the median cost in each year for these states, due to one or two states having costs much higher than those of the other states.

The range of total program costs among states examined was substantial, with the year 1993 displaying the greatest variation between minimum ($49,600) and maximum ($628,400) costs per state. When each state's costs were averaged over the three-year periods, in order to compensate for year-to-year fluctuations, similar data patterns were observed. For the three-year period (1991 to 1993), the study states reported an average of $106,500 in annual operations cost, with a median of $75,000 annually.

Using the three-year average costs, about 70% of the total rebate program costs, on average (for states able to break out costs by category) were allocated toward program staffing. Two states not breaking out costs by category had rebate programs operated nearly completely by outside contractors. The next greatest proportion of expenditures was devoted, on average, to computer systems programming costs. These costs represented about 18% of total expenditures. The remainder of expenses were devoted to computer purchases (about 6-7% on average), office operations (about 4-5% on average), and other miscellaneous cost items, such as furniture.

Aggregate data on rebate program collections for the states were examined. The gross rebate collection amounts appeared substantial. During 1991, the start-up year of the program, the mean rebates collected by the twelve states reporting were about $20 million, and the median was about $13 million. Two states did not collect any rebate revenues in 1991, due to slow start-up operations. Average rebates collected in dollar terms grew over time, as expected, since the prescription drug expenditures were also rising. Using the three-year averages developed for each state's rebate collections, the mean annual amount collected by these states in rebates was over $31 million, and the median over $20 million. States certainly are expected to vary in their rebate collections, since those with larger prescription drug expenditures also accrued greater rebate amounts.

Rebates collected by states as a percentage of total outpatient drug expenditures were examined. During 1991, the start-up year of the program, rebates collected by these twelve states constituted about 13%, on average, of their prescription drug claims expenditures. Rebate collection figures rose in 1992 and 1993 to 17.7% and 18.5%, respectively, of drug program expenditures on average for the states analyzed. The rebate amounts collected represent substantial discounts off the amounts expended for drugs used by the Medicaid population. Although comparable figures are not available on private sector prescription drug rebate or discount programs, several pharmaceutical manufacturers had voluntarily offered rebates to states of only approximately 10% of prices prior to OBRA 90.

Administrative costs of the rebate program were relatively low, as expressed in terms of rebates collected. During 1991 when only one quarter of rebate payments were collected by most states, the average cost of the program across states was only 0.5% of the amounts collected. Considering the three-year means for each state, program costs averaged 0.9% of amounts collected. From the administrative cost perspective, the program appeared efficient, given that less than 1%, on average, of the amounts collected were expended by state Medicaid programs for the program.

The cost of rebate program operations as a percentage of the prescription drug program expenditures, in aggregate, for these states was examined. The average program costs were 0.18%, 0.13%, and 0.11% of drug claims payments for 1991, 1992, and 1993, respectively. Some of the first and second years' costs of operating the rebate program were usually devoted to initial programming and other start-up efforts.

There appear to be economies of scale to operating the program in states with larger prescription drug claims cost, in comparison to states with lower prescription drug claims cost. The states among our analysis set that were lower in drug claims expenditures also had higher rebate operations costs, as a percentage of claims paid. For the six smallest states (in terms of Medicaid drug expenditures) in the analysis, the rebate program cost as a percentage of drug expenditures averaged 0.33% in 1991. For the five largest states, the comparable rebate cost statistic averaged 0.03% of total expenditures in 1991. This is consistent with the notion that the rebate program appears to be predominantly a fixed-cost function, with the process of developing rebate reports and invoices taking similar amounts of resources regardless of the number of drug claims that must be aggregated. Also, each state generally deals with the same number of manufacturers to collect the amounts due.

One other observation warrants note. The states with the lowest collections of rebates, as a percentage of drug claims cost, tended to be the smallest states in this analysis set. Of the four states collecting 16% or less of total drug expenditures as rebates over the three-year period studied, three were among the lowest ranking five states in terms of total drug program expenditures. The program may have been overall more difficult for the smaller states to implement, since these states function with fewer resources and thus, have less flexibility when new program initiatives arise. Also, the smaller states may have lesser ability to substantially update claims data and information systems in comparison to larger states, contributing to difficulties with verifying utilization reports and defending rebate amounts invoiced.

Implications for Policy

Medicaid exists in a very complex policy and political environment. Many changes to Medicaid occur simultaneously making evaluation of individual changes difficult. To the extent that the rebate program helped to partially enable the financing of an expansion in Medicaid eligibility for certain populations including AFDC children and pregnant women, the rebate program appears to have succeeded. The number of Medicaid enrollees has certainly grown since 1990 and the trend line for drug program expenditures has been significantly lowered after accounting for rebates.

There are a number of policy implications raised by the drug rebate program and its current operation. First, both state and federal agencies continue to report their drug expenditures using the drug payments made without reflecting the receipt of rebate payments in the drug expenditure and total program statistics. This lack of transparency for rebate dollars can lead to a failure by policymakers to appreciate the substantial reduction in total drug expenditures achieved through the Medicaid drug rebate program.

Many state Medicaid programs have become dependent upon the revenue generated by the drug rebate program. Any major change in the rebate program would have a significant fiscal impact on state budgets. Some states place the drug rebate amounts directly into the general revenue fund, while others put the rebate funds directly back into the Medicaid program. A state would have to use additional general revenue dollars, cut eligibility, cut services, or cut payments to providers and producers to accommodate for a reduction in rebate payments. None of these changes is easy to accomplish in the current economic and policy environment.

As states consider alternative means for delivery of efficient and effective health care to the Medicaid population they must not overlook the role of the drug rebate program. In evaluating the cost of a managed care plan's coverage of prescription drugs as part of a comprehensive health benefit plan for Medicaid recipients, the role of rebate revenues should be considered. In most cases, when patients are shifted to managed care, the state Medicaid program does not directly receive rebates. While many managed care plans do receive rebates from drug companies, the value of these rebates to the state Medicaid program will not be realized unless they are passed on to the state as lower premiums or as separate payments based on utilization.

The Medicaid drug rebate program appears to have been a successful approach to managing the growth in drug expenditures over its first few years of operation. After accounting for other Medicaid program changes, the growth of Medicaid drug expenditures has slowed considerably and the net drug program expenditure for most states is substantially lower than would have been expected without the rebate program.

Current Year $

Year	Total Medical Payments*	Total Drug Payments*	Drug Exp. as % of Total Medical Expend.	Total Recipients*	Drug Recipients*	Drug Recipients as % of Total Recipients	Total Medical Expend. per Total Recipient
1975	$12,242,000,000	$815,000,000	6.7%	22,007,000	14,155,000	64.3%	$556.28
1976	$14,091,000,000	$940,000,000	6.7%	22,815,000	14,883,000	65.2%	$617.62
1977	$16,239,000,000	$1,018,000,000	6.3%	22,832,000	15,370,000	67.3%	$711.24
1978	$17,992,000,000	$1,082,000,000	6.0%	21,965,000	15,188,000	69.1%	$819.12
1979	$20,472,000,000	$1,196,000,000	5.8%	21,520,000	14,283,000	66.%	$951.30
1980	$23,311,000,000	$1,318,000,000	5.7%	21,605,000	13,707,000	63.4%	$1,078.96
1981	$27,204,000,000	$1,535,000,000	5.6%	21,980,000	14,256,000	64.9%	$1,237.67
1982	$29,399,000,000	$1,599,000,000	5.4%	21,603,000	13,547,000	62.7%	$1,360.88
1983	$32,391,000,000	$1,771,000,000	5.5%	21,544,000	13,732,000	63.7%	$1,503.48
1984	$33,891,000,000	$1,968,000,000	5.8%	21,607,000	13,935,000	64.5%	$1,568.52
1985	$37,508,000,000	$2,315,000,000	6.2%	21,814,000	13,921,000	63.8%	$1,719.45
1986	$41,005,000,000	$2,692,000,000	6.6%	22,515,000	14,704,000	65.3%	$1,821.23
1987	$45,050,000,000	$2,988,000,000	6.6%	23,109,000	15,083,000	65.3%	$1,949.46
1988	$48,710,000,000	$3,294,000,000	6.8%	22,907,000	15,323,000	66.9%	$2,126.44
1989	$54,500,000,000	$3,689,000,000	6.8%	23,511,000	15,916,000	67.7%	$2,318.06
1990	$64,859,000,000	$4,420,000,000	6.8%	25,255,000	17,294,000	68.5%	$2,568.16
1991	$76,964,000,000	$5,424,000,000	7.0%	27,967,000	19,581,000	70.0%	$2,751.96
1992	$91,314,726,920	$6,789,576,805	7.4%	30,251,378	22,062,844	72.9%	$3,018.60
1993	$101,546,607,318	$7,969,202,980	7.8%	32,668,833	23,895,611	73.1%	$3,108.35

Annual Percent Change

Year	Total Medical Payments	Total Drug Payments	Drug Exp. as % of Total Medical Expend.	Total Recipients	Drug Recipients	Drug Recipients as % of Total Recipients	Total Medical Expend. per Total Recipient
1975							
1976	15.1%	15.3%	0.2%	3.7%	5.1%	1.4%	11.0%
1977	15.2%	8.3%	-6.0%	0.1%	3.3%	3.2%	15.2%
1978	10.8%	6.3%	-4.1%	-3.8%	-1.2%	2.7%	15.2%
1979	13.8%	10.5%	-2.9%	-2.0%	-6.0%	-4.0%	16.1%
1980	13.9%	10.2%	-3.2%	0.4%	-4.0%	-4.4%	13.4%
1981	16.7%	16.5%	-0.2%	1.7%	4.0%	2.2%	14.7%
1982	8.1%	4.2%	-3.6%	-1.7%	-5.0%	-3.3%	10.0%
1983	10.2%	10.8%	0.5%	-0.3%	1.4%	1.6%	10.5%
1984	4.6%	11.1%	6.2%	0.3%	1.5%	1.2%	4.3%
1985	10.7%	17.6%	6.3%	1.0%	-0.1%	-1.0%	9.6%
1986	9.3%	16.3%	6.4%	3.2%	5.6%	2.3%	5.9%
1987	9.9%	11.0%	1.0%	2.6%	2.6%	-0.1%	7.0%
1988	8.1%	10.2%	2.0%	-0.9%	1.6%	2.5%	9.1%
1989	11.9%	12.0%	0.1%	2.6%	3.9%	1.2%	9.0%
1990	19.0%	19.8%	0.7%	7.4%	8.7%	1.2%	10.8%
1991	18.7%	22.7%	3.4%	10.7%	13.2%	2.2%	7.2%
1992	18.6%	25.2%	5.5%	8.2%	12.7%	4.2%	9.7%
1993	11.2%	17.4%	5.5%	8.0%	8.3%	0.3%	3.0%

* Raw data from sources cited. Other information is derived from these variables.

SOURCE: Compiled by PRIME Institute, University of Minnesota from HCFA 2082 data found in Pharmaceutical Benefits Under State
Medical Assistance, (Reston, VA: National Pharmaceutical Council, annual volumes), Medicaid Source Book (U.S., GPO, 1993), and
P. Pine, et. al., Health Care Financing Review, 1992 Annual Supplement, pp.235-269.

TABLE 1.b Trends in Medicaid Drug Use Intensity and Efficiency: 1975 to 1993

Current Year $

Year	# of Rx's Dispensed (est.)	Drug Expend. per Total Recipient	Drug Expend. per Drug Recipient	# of Rx's per Total Recipient	# of Rx's per Drug Recipient	Avg. Rx Payment (wt. avg.)*	Drug Product Payment per Rx
1975	175,660,952	$37.03	$57.58	7.98	12.41	$4.64	$4.64
1976	185,090,840	$41.20	$63.16	8.11	12.44	$5.08	$5.08
1977	186,147,204	$44.59	$66.23	8.15	12.11	$5.47	$5.47
1978	183,925,820	$49.26	$71.24	8.37	12.11	$5.88	$5.88
1979	185,996,700	$55.58	$83.74	8.64	13.02	$6.43	$6.43
1980	187,197,348	$61.00	$96.16	8.66	13.66	$7.04	$7.04
1981	194,542,046	$69.84	$107.67	8.85	13.65	$7.89	$7.89
1982	179,486,857	$74.02	$118.03	8.31	13.25	$8.91	$8.91
1983	178,403,792	$82.20	$128.97	8.28	12.99	$9.93	$9.93
1984	180,238,235	$91.08	$141.23	8.34	12.93	$10.92	$10.92
1985	192,796,027	$106.12	$166.30	8.84	13.85	$12.01	$12.01
1986	205,541,334	$119.56	$183.08	9.13	13.98	$13.10	$13.10
1987	214,944,640	$129.30	$198.10	9.30	14.25	$13.90	$13.90
1988	222,750,665	$143.80	$214.97	9.72	14.54	$14.79	$14.79
1989	224,844,340	$156.91	$231.78	9.56	14.13	$16.41	$16.41
1990	249,509,686	$175.01	$255.58	9.88	14.43	$17.71	$17.71
1991	281,368,054	$193.94	$277.00	10.06	14.37	$19.28	$19.28
1992	317,822,574	$224.44	$307.74	10.51	14.41	$21.36	$21.36
1993	348,806,969	$243.94	$333.50	10.68	14.60	$22.85	$22.85

Annual Percent Change

Year	# of Rx's Dispensed (est.)	Drug Expend. per Total Recipient	Drug Expend. per Drug Recipient	# of Rx's per Total Recipient	# of Rx's per Drug Recipient	Avg. Rx Payment (wt. avg.)	Drug Product Payment per Rx
1975							
1976	5.4%	11.3%	9.7%	1.6%	0.2%	9.5%	9.5%
1977	0.6%	8.2%	4.9%	0.5%	-2.6%	7.7%	7.7%
1978	-1.2%	10.5%	7.6%	2.7%	0.0%	7.6%	7.6%
1979	1.1%	12.8%	17.5%	3.2%	7.5%	9.3%	9.3%
1980	0.6%	9.8%	14.8%	0.2%	4.9%	9.5%	9.5%
1981	3.9%	14.5%	12.0%	2.2%	-0.1%	12.1%	12.1%
1982	-7.7%	6.0%	9.6%	-1.1%	-2.9%	12.9%	12.9%
1983	-0.6%	11.1%	9.3%	-0.3%	-1.9%	11.4%	11.4%
1984	1.0%	10.8%	9.5%	0.7%	-0.4%	10.0%	10.0%
1985	7.0%	16.5%	17.8%	6.0%	7.1%	10.0%	10.0%
1986	6.6%	12.7%	10.1%	3.3%	0.9%	9.1%	9.1%
1987	4.6%	8.1%	8.2%	1.9%	1.9%	6.1%	6.1%
1988	3.6%	11.2%	8.5%	4.5%	2.0%	6.4%	6.4%
1989	0.9%	9.1%	7.8%	-1.7%	-2.8%	10.9%	10.9%
1990	11.0%	11.5%	10.3%	3.3%	2.1%	8.0%	8.0%
1991	12.8%	10.8%	8.4%	1.8%	-0.4%	8.8%	8.8%
1992	13.0%	15.7%	11.1%	4.4%	0.2%	10.8%	10.8%
1993	9.7%	8.7%	8.4%	1.6%	1.3%	6.9%	6.9%

* Raw data from sources cited. Other information is derived from these variables.

SOURCE: Compiled by PRIME Institute, University of Minnesota from HCFA 2082 data found in Pharmaceutical Benefits Under State Medical Assistance. (Reston, VA: National Pharmaceutical Council, annual volumes), Medicaid Source Book (U.S., GPO, 1993), and P. Pine. et. al., Health Care Financing Review, 1992 Annual Supplement. pp.235-269.

TABLE 1.c Trends in Medicaid Drug Expenditures & Rebates: 1975 to 1993

Current Year $

Year	Medicaid Rebate Payments Collected (Total $)*	Total Drug Expend. After Rebates	Rebate Amount per Rx ($/Rx)	Avg. Rx Payment After Rebates	Drug Product Payment per Rx After Rebates	Drug Prod Payment as % of Rx $ After Rebates	Drug Expend. per Drug Recip. After Rebates
1975	$0	$815,000,000	$0.00	$4.64	$4.64	100.0%	$57.58
1976	$0	$940,000,000	$0.00	$5.08	$5.08	100.0%	$63.16
1977	$0	$1,018,000,000	$0.00	$5.47	$5.47	100.0%	$66.23
1978	$0	$1,082,000,000	$0.00	$5.88	$5.88	100.0%	$71.24
1979	$0	$1,196,000,000	$0.00	$5.43	$6.43	100.0%	$83.74
1980	$0	$1,318,000,000	$0.00	$7.04	$7.04	100.0%	$96.16
1981	$0	$1,535,000,000	$0.00	$7.89	$7.89	100.0%	$107.67
1982	$0	$1,599,000,000	$0.00	$8.91	$8.91	100.0%	$118.03
1983	$0	$1,771,000,000	$0.00	$9.93	$9.93	100.0%	$128.97
1984	$0	$1,968,000,000	$0.00	$10.92	$10.92	100.0%	$141.23
1985	$0	$2,315,000,000	$0.00	$12.01	$12.01	100.0%	$166.30
1986	$0	$2,692,000,000	$0.00	$13.10	$13.10	100.0%	$183.08
1987	$0	$2,988,000,000	$0.00	$13.90	$13.90	100.0%	$198.10
1988	$0	$3,294,000,000	$0.00	$14.79	$14.79	100.0%	$214.97
1989	$0	$3,689,000,000	$0.00	$16.41	$16.41	100.0%	$231.78
1990	$0	$4,420,000,000	$0.00	$17.71	$17.71	100.0%	$255.58
1991	$110,943,811	$5,313,056,189	$0.39	$18.88	$18.88	100.0%	$271.34
1992	$900,252,297	$5,889,324,508	$2.83	$18.53	$18.53	100.0%	$266.93
1993	$1,413,070,407	$6,556,132,573	$4.05	$18.80	$18.80	100.0%	$274.37

Annual Percent Change

Year	Medicaid Rebate Payments (Total $)	Total Drug Expend. After Rebates	Rebate Amount per Rx ($/Rx)	Avg. Rx Payment After Rebates	Drug Product Payment per Rx After Rebates	Drug Prod Payment as % of Rx $ After Rebates	Drug Expend. per Drug Recip. After Rebates
1975							
1976		15.3%		9.5%	9.5%	0.0%	9.7%
1977		8.3%		7.7%	7.7%	0.0%	4.9%
1978		6.3%		7.6%	7.6%	0.0%	7.6%
1979		10.5%		9.3%	9.3%	0.0%	17.5%
1980		10.2%		9.5%	9.5%	0.0%	14.8%
1981		16.5%		12.1%	12.1%	0.0%	12.0%
1982		4.2%		12.9%	12.9%	0.0%	9.6%
1983		10.8%		11.4%	11.4%	0.0%	9.3%
1984		11.1%		10.0%	10.0%	0.0%	9.5%
1985		17.6%		10.0%	10.0%	0.0%	17.8%
1986		16.3%		9.1%	9.1%	0.0%	10.1%
1987		11.0%		6.1%	6.1%	0.0%	8.2%
1988		10.2%		6.4%	6.4%	0.0%	8.5%
1989		12.0%		10.9%	10.9%	0.0%	7.8%
1990		19.8%		8.0%	8.0%	0.0%	10.3%
1991		20.2%		6.6%	6.6%	0.0%	6.2%
1992	711.4%	10.8%	618.4%	-1.9%	-1.9%	0.0%	-1.6%
1993	57.0%	11.3%	43.0%	1.4%	1.4%	0.0%	2.8%

* Raw data from sources cited. Other information is derived from these variables.

SOURCE: Compiled by PRIME Institute, University of Minnesota from HCFA 2082 data found in Pharmaceutical Benefits Under State
    Medical Assistance. (Reston, VA: National Pharmaceutical Council, annual volumes), Medicaid Source Book (U.S., GPO, 1993), and
    P. Pine, et. al., Health Care Financing Review, 1992 Annual Supplement, pp.235-269.

Table 2 Medicaid Rebates Accrued and Collected: 1991 to 1993

FY-Qtr	CY-Qtr	# of States Reporting	Rebate Accrued (1)	Rebate Collected (2)	Cumulative Rebate Accrued	Cumulative Rebate Collected	Cumulative Rebate Uncollected
91 Q2	91 Q1		$99,618,948	$4,323,329	$99,618,948	$4,323,329	$95,295,619
91 Q3	91 Q2		$151,312,486	$6,763,614	$250,931,434	$11,086,943	$239,844,491
91 Q4	91 Q3	39	$191,328,922	$99,856,868	$442,260,356	$110,943,811	$331,316,545
92 Q1	91 Q4	42	$170,092,916	$140,087,874	$612,353,272	$251,031,685	$361,321,587
92 Q2	92 Q1	50	$242,742,879	$204,114,349	$855,096,151	$455,146,034	$399,950,117
92 Q3	92 Q2	50	$202,402,012	$261,584,604	$1,057,498,163	$716,730,638	$340,767,525
92 Q4	92 Q3	50	$203,998,082	$294,465,470	$1,261,496,246	$1,011,196,108	$250,300,138
93 Q1	92 Q4	50	$274,000,000	$343,306,924	$1,535,496,246	$1,354,503,032	$180,993,214
93 Q2	93 Q1	50	$280,000,000	$292,145,269	$1,815,496,246	$1,646,648,301	$168,847,945
93 Q3	93 Q2	50	$258,000,000	$429,890,937	$2,073,496,246	$2,076,539,238	($3,042,992)
93 Q4	93 Q3	50	$255,000,000	$347,727,277	$2,328,496,246	$2,424,266,515	($95,770,269)
94 Q1	93 Q4	49	$257,000,000	$410,656,647	$2,585,496,246	$2,834,923,162	($249,426,916)
	CY 91		$612,353,272	$251,031,685	$612,353,272	$251,031,685	$1,027,778,242
	CY 92		$923,142,974	$1,103,471,347	$1,535,496,246	$1,354,503,032	$1,172,010,994
	CY 93		$1,050,000,000	$1,480,420,130	$2,585,496,246	$2,834,923,162	($179,392,233)
FY 91			$442,260,356	$110,943,811	$442,260,356	$110,943,811	$666,456,655
FY 92			$819,235,890	$900,252,297	$1,261,496,246	$1,011,196,108	$1,352,339,367
FY 93			$1,067,000,000	$1,413,070,407	$2,328,496,246	$2,424,266,515	$251,027,897

FY-Qtr	CY-Qtr	# of States Reporting	Total Prescribed Drugs Payments (2)	Rebates Accrued as % of Drug Payments	Rebates Collected as % of Drug Payments	Rebates Uncollected as % of Drug Payments	Rebates Collected as % Rebates Accrued
91 Q2	91 Q1		$532,449,877	18.7%	0.8%	17.9%	4.3%
91 Q3	91 Q2		$539,773,049	28.0%	1.3%	44.4%	4.5%
91 Q4	91 Q3	39	$1,316,433,341	14.5%	7.6%	..5.2%	52.2%
92 Q1	91 Q4	42	$1,506,553,180	11.3%	9.3%	24.0%	82.4%
92 Q2	92 Q1	50	$1,769,379,913	13.7%	11.5%	22.6%	84.1%
92 Q3	92 Q2	50	$1,807,179,800	11.2%	14.5%	18.9%	129.2%
92 Q4	92 Q3	50	$1,868,567,330	10.9%	15.8%	13.4%	144.3%
93 Q1	92 Q4	50	$1,932,957,927	14.2%	17.8%	9.4%	125.3%
93 Q2	93 Q1	50	$2,081,453,512	13.5%	14.0%	8.1%	104.3%
93 Q3	93 Q2	50	$2,115,901,074	12.2%	20.3%	-0.1%	166.6%
93 Q4	93 Q3	50	$2,188,556,768	11.7%	15.9%	-4.4%	136.4%
94 Q1	93 Q4	49	$2,191,129,198	11.7%	18.7%	-11.4%	159.8%
	CY 91		$3,895,209,447	15.7%	6.4%	26.4%	41.0%
	CY 92		$7,378,084,970	12.5%	15.0%	15.9%	119.5%
	CY 93		$8,577,040,552	12.2%	17.3%	-2.1%	141.0%
FY 91			$2,388,656,267	18.5%	4.6%	27.9%	25.1%
FY 92			$6,951,680,223	11.8%	13.0%	19.5%	109.9%
FY 93			$8,318,869,281	12.8%	17.0%	3.0%	132.4%

SOURCES:
  (1) HCFA estimates.
  (2) Report to Congress: Medicaid Drug Rebate Program, 1992, 1993, & 1995.

Table 3. Medicaid Rebates: Distribution by Type in 1991 to 1993

FY-Qtr	CY-Qtr	Total Rebate Amount	Basic Rebate Amount w/o Best Price or Add'l Rebate	Best Price Contribution to Rebate Amount	Additional (Inflation) Rebate Amount	Non-Innovator Drug Rebate Amount
			Rebate Amounts Accrued (1)			
91 Q2	91 Q1	$99,618,948	$51,584,275	$31,462,548	$15,009,946	$1,562,179
91 Q3	91 Q2	$151,312,486	$74,819,663	$44,122,132	$30,031,484	$2,339,207
91 Q4	91 Q3	$191,328,922	$93,450,542	$52,410,452	$42,903,189	$2,564,740
92 Q1	91 Q4	$170,092,916	$82,444,281	$42,611,553	$42,644,563	$2,392,520
92 Q2	92 Q1	$242,742,879	$93,800,204	$88,907,755	$57,335,216	$2,699,704
92 Q3	92 Q2	$202,402,012	$80,203,996	$68,463,028	$51,526,183	$2,208,805
92 Q4	92 Q3	$203,998,082	$78,044,643	$74,405,685	$49,427,497	$2,120,257
93 Q1	92 Q4	$274,000,000	$106,000,000	$80,000,000	$85,000,000	$3,000,000
93 Q2	93 Q1	$280,000,000	$110,000,000	$65,000,000	$102,000,000	$3,000,000
93 Q3	93 Q2	$258,000,000	$104,000,000	$60,000,000	$92,000,000	$2,000,000
93 Q4	93 Q3	$255,000,000	$103,000,000	$63,000,000	$87,000,000	$2,000,000
94 Q1	93 Q4	$257,000,000	$101,000,000	$61,000,000	$92,000,000	$3,000,000
	CY 91	$612,353,272	$302,298,762	$170,606,684	$130,589,181	$8,858,645
	CY 92	$923,142,974	$358,048,843	$311,776,467	$243,288,897	$10,028,766
	CY 93	$1,050,000,000	$418,000,000	$249,000,000	$373,000,000	$10,000,000
FY 91		$442,260,356	$219,854,480	$127,995,131	$87,944,619	$6,466,126
FY 92		$819,235,890	$334,493,125	$274,388,020	$200,933,459	$9,421,285
FY 93		$1,067,000,000	$423,000,000	$268,000,000	$366,000,000	$10,000,000

Rebate Amount Accrued by Type of Rebate as a % of Total Rebate Amount Accrued

FY-Qtr	CY-Qtr	Total Rebate Amount	Basic Rebate w/o Best Price/Add'l	Best Price Contribution	Additional (Inflation)	Non-Innovator Drug
91 Q2	91 Q1	100.0%	51.8%	31.6%	15.1%	1.6%
91 Q3	91 Q2	100.0%	49.4%	29.2%	19.8%	1.5%
91 Q4	91 Q3	100.0%	48.8%	27.4%	22.4%	1.3%
92 Q1	91 Q4	100.0%	48.5%	25.1%	25.1%	1.4%
92 Q2	92 Q1	100.0%	38.6%	36.6%	23.6%	1.1%
92 Q3	92 Q2	100.0%	39.6%	33.8%	25.5%	1.1%
92 Q4	92 Q3	100.0%	38.3%	36.5%	24.2%	1.0%
93 Q1	92 Q4	100.0%	38.7%	29.2%	31.0%	1.1%
93 Q2	93 Q1	100.0%	39.3%	23.2%	36.4%	1.1%
93 Q3	93 Q2	100.0%	40.3%	23.3%	35.7%	0.8%
93 Q4	93 Q3	100.0%	40.4%	24.7%	34.1%	0.8%
94 Q1	93 Q4	100.0%	39.3%	23.7%	35.8%	1.2%
	CY 91	100.0%	49.4%	27.9%	21.3%	1.4%
	CY 92	100.0%	38.8%	33.8%	26.4%	1.1%
	CY 93	100.0%	39.8%	23.7%	35.5%	1.0%
FY 91		100.0%	49.7%	28.9%	19.9%	1.5%
FY 92		100.0%	40.8%	33.5%	24.5%	1.2%
FY 93		100.0%	39.6%	25.1%	34.3%	0.9%

SOURCES:
(1) HCFA estimates.
(2) Report to Congress: Medicaid Drug Rebate Program, 1992, 1993, & 1995.

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Table 4.
Relationship of Rebate Payments to Changes in Expenditures from
Shifts in Utilization Adjusted for Enrollment Changes
(in $ 1,000s)

	Arkansas	Georgia	Iowa	Indiana	Missouri	New Hamp.	Utah	Washington
I. Change in Expenditure Due to (a):								
a. New Drugs (b)	$1,063.7	$1,374.7	$1,043.3	$2,274.5	$1,527.3	$166.8	$381.9	$2,034.8
b. Substitution of existing NDCs (c)	$1,909.7	$1,011.5	$1,340.7	$2,659.2	$4,304.2	$512.2	$475.9	$2,923.3
c. Utilization of old NDCs	($2,544.70)	($1,972.30)	$514.2	$2,049.4	$4,485.2	$346.3	$373.3	$2,080.9
d. Total change in utilization	$428.5	$413.9	$2,898.2	$6,983.1	$10,316.7	$1,035.3	$1,231.1	$7,039.0
e. Rebate payment	$5,272.6	$7,429.7	$6,809.6	$13,478.9	$6,934.7	$1,508.8	$1,982.3	$11,049.0
II. Benefit Ratios								
a. Rebates/total change in utilization	12.30	17.95	2.35	1.93	0.67	1.47	1.61	1.57
b. Rebates/Total change in utilization net new drugs	(d)	(d)	3.67	2.86	0.79	1.76	2.33	2.21

SOURCE: Appendix Table 6

NOTES:

(a) All Figures adjusted by calculating 1992 expenditures with 1990 enrollments.

(b) New drugs are those NCDs whose combination of drug entity, dosage form and strength did not exist in 1990

(c) Substitution of NDCs is the net amount from subtracting expenditures on NDCs used only in 1990 form the sum of expenditures for NDCs that existed in 1990, .
   but were not prescribed in a state plus expenditures for new NDCs for existing drugs

(d) Ratios would be based on negative changes in utilization expenditures

Table 5.
Decomposition of Changes in Drug Expenditures:
1990 vs. 1992

State	Total Drug Expend.	Drug Expend. Net of Rebates	Drug Product Prices	Drug Users per 1,000 Enrollees	Rx's per User	Changes in Enrollment Mix
Total for All Eligibles						
Arkansas	9.4%	-10.2%	11.3%	-12.7%	-2.7%	15.4%
Georgia	27.0%	1.2%	12.7%	-8.9%	-2.0%	23.3%
Iowa	34.8%	7.7%	21.4%	-0.3%	4.1%	12.2%
Indiana	56.6%	23.9%	16.4%	1.1%	4.4%	29.2%
Missouri	72.3%	35.7%	12.3%	21.5%	9.5%	15.1%
N. Hampshire	63.7%	29.0%	14.4%	1.7%	3.2%	36.6%
Utah	58.3%	23.9%	15.9%	4.7%	-1.3%	27.8%
Washington	51.1%	17.0%	15.9%	1.1%	0.0%	26.0%

Note: Independent factors will not sum across to equal total expenditure changes, due to cross-product terms

Table 6
Decomposition of Changes in Drug Expenditures:
By Basis of Eligibility 1990 vs. 1992

State	Total Drug Expend.	Drug Expend. Net of Rebates	Drug Product Prices	Drug Users per 1,000 Enrollees	Rx's per User	Changes in Enrollment Mix
Aged Eligibles						
Arkansas	3.9%	-14.9%	11.4%	-12.0%	-1.0%	5.5%
Georgia	13.3%	-9.5%	11.7%	-10.8%	-3.0%	10.0%
Iowa	27.2%	2.9%	27.6%	-2.9%	3.5%	8.3%
Indiana	37.7%	10.0%	15.9%	-0.9%	6.3%	14.2%
Missouri	59.5%	26.8%	12.6%	19.6%	10.4%	8.0%
N. Hampshire	48.4%	18.7%	13.9%	9.3%	3.6%	12.8%
Utah	33.8%	4.7%	15.9%	0.2%	-1.3%	11.4%
Washington	34.2%	4.2%	17.2%	-1.1%	1.2%	11.0%
Blind/Disabled						
Arkansas	12.8%	-8.3%	11.4%	-17.6%	-5.1%	26.0%
Georgia	26.5%	0.1%	14.3%	-9.1%	-1.8%	22.6%
Iowa	42.2%	13.0%	18.4%	-0.1%	3.7%	18.0%
Indiana	56.3%	22.8%	17.7%	0.8%	1.3%	26.5%
Missouri	88.9%	48.5%	12.0%	26.9%	9.1%	21.7%
N. Hampshire	61.7%	26.1%	15.5%	-10.1%	5.5%	47.1%
Utah	58.8%	24.1%	17.6%	1.2%	-2.7%	32.0%
Washington	63.1%	25.8%	15.3%	0.8%	-0.3%	36.0%
AFDC/Poverty Adults						
Arkansas	0.3%	-17.5%	7.7%	-22.1%	-5.9%	20.4%
Georgia	29.6%	2.3%	10.4%	-20.8%	-4.3%	46.6%
Iowa	30.3%	-0.3%	12.5%	2.1%	3.3%	7.7%
Indiana	73.4%	34.4%	14.3%	-3.6%	1.9%	48.2%
Missouri	70.5%	28.4%	10.8%	20.8%	7.5%	13.0%
N. Hampshire	114.8%	62.7%	12.6%	-3.4%	-2.8%	85.7%
Utah	61.9%	24.0%	12.8%	6.0%	2.0%	26.8%
Washington	68.7%	35.4%	16.0%	10.5%	-1.4%	33.7%
AFDC/Poverty Children						
Arkansas	37.0%	17.2%	13.0%	1.2%	-4.3%	28.2%
Georgia	88.0%	51.6%	14.7%	11.1%	-2.0%	49.9%
Iowa	47.7%	19.2%	15.6%	7.0%	1.8%	16.7%
Indiana	129.7%	83.5%	17.0%	19.1%	3.6%	63.9%
Missouri	84.3%	45.8%	12.7%	9.1%	6.7%	29.6%
N. Hampshire	121.2%	76.0%	14.5%	12.2%	-4.8%	73.5%
Utah	97.4%	58.9%	15.6%	21.6%	-4.7%	43.7%
Washington	68.7%	35.4%	16.0%	10.5%	-1.4%	33.7%

Note: Independent factors will not sum across to equal total expenditure changes, due to cross-product terms

Table 7.
Restrictiveness Index for Medicaid: 1990 & 1992
All NDCs Adjusted for OBRA 90 Exicusions

	SS # of NDC's	IMS # of NDC's	NMS # of NDC's	OTC # of NDC's	Total # of NDC's (unweighted)	SS+IMS # of NDC's	Rx # of NDC's	Total # of NDC's
							(weighted average indices)	
1990								
Formulary Restrictiveness Index (FRI= 1+(1-% NDCs reimbursed))								
Arkansas	49	25	19	75	37	46	40	43
Georgia	60	66	58	99	71	61	60	64
Indiana	2	3	5	7	6	2	3	3
Iowa	2	2	5	68	24	2	2	9
Kansas	22	5	5	11	8	20	17	16
Missouri	73	53	44	92	60	70	65	67
New Hampshire	2	1	3	1	2	2	2	2
Utah	2	3	6	75	26	2	3	10
Washington	49	30	25	77	42	46	42	45
1992								
Formulary Restrictiveness Index (FRI= 1+(1-% NDCs reimbursed))								
Arkansas	11	3	3	57	24	10	9	13
Georgia	14	7	5	66	28	13	11	17
Indiana	6	0	0	23	9	5	4	6
Iowa	6	-1	-1	56	21	5	4	9
Kansas	9	0	-1	32	12	8	6	9
Missouri	10	1	0	27	11	9	7	9
New Hampshire	6	-1	-1	20	7	5	4	5
Utah	7	0	0	56	21	6	5	10
Washington	30	15	10	50	27	28	24	27
OBRA 90 adjustment								
	30	30	30	30	30	30	30	30
Change in Formulary Restrictiveness Index (1992 - 1990)								
Arkansas	-38	-21	-15	-18	-14	-35	-31	-30
Georgia	-46	-58	-53	-34	-43	-48	-49	-47
Indiana	4	-3	-6	15	3	3	1	3
Iowa	5	-3	-5	-12	-3	3	2	0
Kansas	-13	-5	-6	22	5	-12	-11	-7
Missouri	-63	-52	-44	-65	-49	-61	-58	-58
New Hampshire	4	-2	-4	19	5	3	2	3
Utah	6	-3	-6	-19	-5	4	2	0
Washington	-19	-14	-15	-27	-15	-18	-17	-18

Figure 1. Medicaid Drug Expenditures in
Current & Constant (1975) Dollars:
1975 to 1993
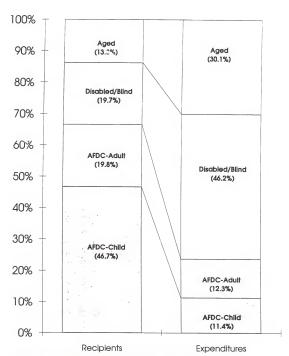
Figure 2.
Total Medicaid & Drug Recipients:
1975 to 1993

Figure 3.
Drug Expenditures and Recipients*:
Distribution by Type of Recipient in 1992

Recipients column:
- Aged (13.0%)
- Disabled/Blind (19.7%)
- AFDC-Adult (19.8%)
- AFDC-Child (46.7%)

Expenditures column:
- Aged (30.1%)
- Disabled/Blind (46.2%)
- AFDC-Adult (12.3%)
- AFDC-Child (11.4%)

Recipients   Expenditures

*Based on data from 27 states reporting complete data in each year from 1988 to 1992.
SOURCE: Compiled by the PRIME Institute, University of Minnesota from data found in Pharmaceutical Benefits Under State Medical Assistance Programs (Reston, VA: National Pharmaceutical Council, annual reports, 1988 to 1993).

Figure 4.
Annual Drug Expenditure per Drug Recipient
by Basis of Eligibility: 1988 to 1992
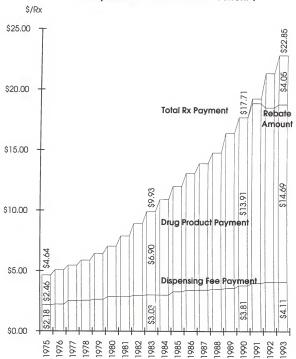
Source: Based on 27 states with complete data by recipient type as found in Pharmaceutical Benefits Under
State Medical Assistance Programs (Reston, VA: National Pharmaceutical Council, 1988 to 1993).

Figure 5.
Medicaid Average Prescription Payment &
Components: 1975 to 1993 in Current $
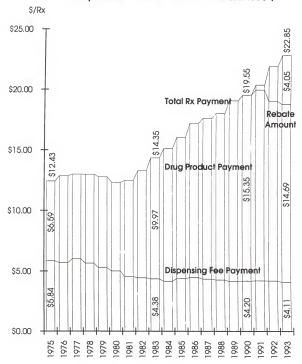
SOURCE: Compiled by the PRIME Institute University of Minnesota from data found in Pharmaceutical Benefits Under State Medical Assistance Programs, National Pharmaceutical Council, 1975 to 1994.
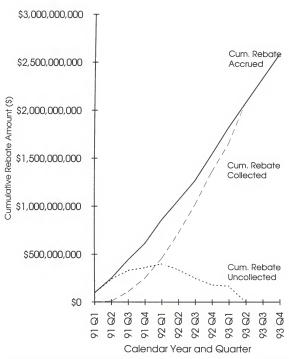
Figure 6.
Medicaid Average Prescription Payment &
Components: 1975 to 1993 in Constant 1993 $

$/Rx

Total Rx Payment

Rebate
Amount

Drug Product Payment

Dispensing Fee Payment

$25.00 — $22.85

$20.00 — $19.55 — $4.05

$15.00 — $14.35 — $15.35 — $14.69

$12.43 — $9.97

$10.00

$6.59

$5.84

$5.00 — $4.38 — $4.20 — $4.11

$0.00

1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993

Figure 7. Medicaid Drug Rebates: Cumulative Amount Accrued, Collected and Uncollected 1991 to 1993

SOURCE: Compiled by the PRIME Institute, University of Minnesota from data found in Report to Congress: Medicaid Drug Rebate Program, 1992, 1993, and 1995 and HCFA estimates.

Figure 8. Percent Change in Annual Drug Expenditures per Recipient: 1990 vs. 1992 After Rebates & Inflation Adjustment

State	Percent Change
West Virginia	33.5%
Kentucky	33.3%
Missouri	29.2%
Massachusetts	18.4%
Louisiana	10.2%
Nebraska	10.2%
New Jersey	9.6%
Mississippi	8.8%
Connecticut	8.5%
Montana	8.1%
Alabama	8.0%
Illinois	6.9%
Washington	6.6%
Tennessee	5.0%
Delaware	4.6%
Kansas	4.4%
D.C.	3.8%
Hawaii	3.1%
Alaska	2.3%
California	1.1%
Wisconsin	0.8%
Pennsylvania	-1.0%
Iowa	-2.0%
Utah	-2.0%
Oregon	-2.2%
National Avg.	-2.9%
Indiana	-3.2%
Ohio	-3.5%
Michigan	-3.6%
Maryland	-3.7%
Minnesota	-5.4%
Virginia	-5.9%
Oklahoma	-5.9%
Texas	-6.9%
Vermont	-7.8%
South Dakota	-9.3%
Maine	-9.4%
New Mexico	-12.3%
Rhode Island	-12.7%
New Hampshire	-15.9%
Nevada	-16.2%
Idaho	-17.9%
Arkansas	-18.2%
North Dakota	-19.4%
Florida	-19.4%
Colorado	-22.2%
North Carolina	-22.5%
South Carolina	-22.9%
New York	-28.7%
Georgia	-31.6%
Wyoming	-44.7%

SOURCE: Compiled by the PRIME Institute, University of Minnesota from data found in Pharmaceutical Benefits Under State Medical Assistance Programs (Reston, VA: National Pharmaceutical Council, 1988 to 1993); in 1990 constant dollars.

Figure 9. Medicaid Drug Rebates:
Percent Distribution by Type of Rebate
1991 to 1993

Figure 10. Change in Factors
Contributing to Growth in Medicaid
Drug Expenditures Net of Rebates: 1988 to 1993

SOURCE: Compiled by the PRIME Institute, University of Minnesota from data found in Pharmaceutical Benefits Under State Medical Assistance Programs (Reston, VA, National Pharmaceutical Council, 1988 to 1994).

Figure 11. Medicaid Drug Expenditures
After Adjusting for Recipient Growth,
General Inflation, and Rebates: 1983 to 1993
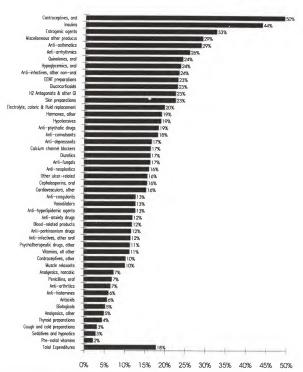
Figure 12.
Change in Medicaid Drug Expenditures &
Rebate Payments: 1990 and 1992

SOURCE: Estimate based on MSIS personal file and Claims-OT data for 6 month time period in each year extrapolated to one year expenditure level.

Figure 13.
Arkansas 1992:
Rebate Amount as a % of Total Expenditures:

Category	%
Contraceptives, oral	50%
Insulins	44%
Estrogenic agents	33%
Miscellaneous other products	29%
Anti-asthmatics	29%
Anti-arrhythmics	26%
Quinolones, oral	24%
Hypoglycemics, oral	24%
Anti-infectives, other non-oral	24%
EENT preparations	23%
Glucocorticoids	23%
H2 Antagonists & other GI	23%
Skin preparations	23%
Electrolyte, caloric & fluid replacement	20%
Hormones, other	19%
Hypotensives	19%
Anti-psychotic drugs	19%
Anti-convulsants	18%
Anti-depressants	17%
Calcium channel blockers	17%
Diuretics	17%
Anti-fungals	17%
Anti-neoplastics	16%
Other ulcer-related	16%
Cephalosporins, oral	16%
Cardiovasculars, other	16%
Anti-coagulants	13%
Vasodilators	13%
Anti-hyperlipidemic agents	13%
Anti-anxiety drugs	12%
Blood-related products	12%
Anti-parkinsonism drugs	12%
Anti-infectives, other oral	12%
Psychotherapeutic drugs, other	11%
Vitamins, all other	11%
Contraceptives, other	10%
Muscle relaxants	10%
Analgesics, narcotic	7%
Penicillins, oral	7%
Anti-arthritics	7%
Anti-histamines	6%
Antacids	6%
Biologicals	5%
Analgesics, other	5%
Thyroid preparations	4%
Cough and cold preparations	3%
Sedatives and hypnotics	3%
Pre-natal vitamins	2%
Total Expenditures	18%

0%   5%   10%   15%   20%   25%   30%   35%   40%   45%   50%

SOURCE: Estimate based on MSIS personal file and Claims-OT data for 6 month time period in each year extrapolated to one year expenditure level.

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Figure 14.
Medicaid Coverage Restrictiveness Index
from 1990 to 1992 for Selected States:
All NDCs Adjusted for OBRA 90 Exclusions

* A score of 1 indicates all drugs (NDCs) covered and a score of 100 indicates no drugs (NDCs) covered.

CHAPTER I.

INTRODUCTION AND PROJECT OVERVIEW

The Omnibus Budget Reconciliation Act of 1990 (OBRA 90) established a Medicaid drug rebate program. This program was enacted on November 5, 1990 and went into effect 54 days later on January 1, 1991. Specific provisions of the legislation included manufacturer rebates to Medicaid programs, general elimination of states' authority to use restrictive formularies, and some additional requirements for states' implementing prior authorization programs. At the end of 1994 the Medicaid drug rebate program had been in place for four years.

The overall purpose of this project was to assess the implementation and net impact of the Medicaid drug rebate legislation on access to, utilization of, and expenditures for prescribed drugs for the Medicaid population. This first chapter provides a discussion of the program background and experience, a statement of the overall evaluation objectives, and an overview of data sources and the evaluation framework. Subsequent chapters address the descriptive analysis of aggregate trends (Chapter II), methods and findings of detailed state case studies (Chapter III), administrative impact case studies (Chapter IV), and integration of study findings with a discussion of implications for policy and future research needs (Chapter V).

I.A. Background of the Medicaid Drug Rebate Program

A thorough evaluation of a public initiative such as the Medicaid drug rebate program must address the issues of payment, propriety, and purpose. In the context of the Medicaid drug rebate program, 'payment' concerns include determining how much is being spent on prescription drugs and how much is being accrued and collected in rebates from manufacturers. 'Propriety' concerns involve issues such as assessment of whether or not the unit volume data for each drug submitted by the state

Medicaid program are accurate and whether or not the amount of the rebate collected from each

manufacturer represents the full amount that was due under the rebate program. 'Purpose' involves

assessing whether or not the legislation has achieved its ultimate goal--saving Medicaid dollars while

improving access to drug therapy for Medicaid patients. Each of these perspectives has been

incorporated into this assessment of the Medicaid drug rebate legislation.

I.A.1. Growth in Medicaid Drug Expenditures

Historically, Medicaid programs have covered outpatient prescription drugs, even though such

coverage is defined as optional by the authorizing legislation. The national aggregate of state Medicaid

expenditures for prescribed drugs nearly doubled in the five year period from 1985 to 1990, growing

from $2.3 billion to $4.4 billion (Pharmaceutical Benefits Under State Medical Assistance Programs;

Reston, VA: National Pharmaceutical Council, 1986 to 1991 annual reports). Prescribed drug

expenditures under Medicaid had been rising at an average annual rate of 13.9% in the five years prior

to the rebate legislation. This level of drug expenditure increases had been examined by both

Congress and HCFA. Also, since Medicaid expenditures represent one of the largest components of

most states' budgets, this rapid rise in Medicaid drug expenditures has been of great concern to the

states (Rowland, Diane, Judith Feder, Barbara Lyons, and Alina Salganicoff, A Report of the Kaiser

Commission on the Future of Medicaid: Medicaid at the Crossroads, Report 1.; Baltimore, MD: Kaiser

Commission, November 1992). Many state governments face severe budgetary problems, in general,

and with Medicaid, in particular. Additionally, state Medicaid programs collectively paid for more than

12% of all outpatient prescriptions in the United States in 1989 (Schondelmeyer, Stephen W. and

Joseph Thomas III, "Trends in Retail Prescription Expenditures," Health Affairs, vol. 9, no.3, Fall 1990,

pp. 131-145). Medicaid is typically the single largest payer for outpatient prescriptions within each

state, yet this government program traditionally did not have access to discounts and rebates often

obtained by certain other buyers, such as hospitals, HMOs, or other government agencies.

I.A.2. Medicaid Drug Rebate Program Provisions

Congress recognized that the Medicaid programs were paying an undiscounted manufacturer's price in the market, while both federal and state Medicaid drug programs faced rapidly growing drug prices and severely limited resources. Other types of prescription purchasers (i.e., hospitals and HMOs) were able to obtain favorable prices directly or through rebate programs. Several state Medicaid programs had attempted to negotiate rebates but were not successful. After conducting hearings on how to manage Medicaid drug expenditure growth, Congress authorized a Medicaid drug rebate program as part of the Omnibus Budget Reconciliation Act of 1990 (OBRA 90, Title IV, Subtitle B Section 4401,). The primary goals of the rebate program were to allow Medicaid programs to achieve savings in drug program expenditures and to increase Medicaid beneficiary access to drugs. Savings of $3.4 billion dollars over the five year period, 1991 to 1995, were expected (Pollard, Michael R. and John M. Coster, "I. Legislation. Savings for Medicaid Drug Spending," Health Affairs, vol.10, no.2, Summer 1991, pp. 196-206). Congress requested that HCFA prepare quarterly and annual reports on the rebate program and that other provisions (i.e., drug utilization review) be evaluated to determine the cost impact of the legislation.

OBRA 90 provided for the development of a Medicaid drug rebate program. The law prohibited federal matching funds from being provided for Medicaid outpatient prescription drugs, unless the manufacturer of such drugs had in effect a rebate agreement with HCFA for their drug products. The Secretary may make exceptions, at his or her discretion, for drugs necessary for life-threatening conditions. This rebate program does not apply to drugs used in inpatient settings. The Act specified how the rebates would be calculated, using a relatively straightforward formula that features a basic rebate for all types of drugs including: single source (SS) drugs, innovator multiple source (IMS) drugs, and non-innovator multiple source (NMS; i.e., generic) drugs. The basic rebate is the product of the number of drug "units" utilized during a given quarter times the greater of: the minimum rebate amount

expressed as a percentage of the average manufacturer price (AMP) or the difference between the average manufacturer's price (AMP) and the best price for a unit of the product to any other purchaser. During 1991 the SS and IMS drugs were subject to a rebate which is the greater of a minimum rebate of 12.5% or a best price rebate capped at no more than 25% of the AMP. In 1992, SS and IMS drugs paid a rebate which was the greater of a minimum rebate of 12.5% or a best price capped at no more than 50% of the AMP. These basic rebate minimum percentages were later altered by the Veterans Health Care Act of 1992, as described later. NMS (generic) drugs were subject to a minimum rebate of 10% in 1991 through 1993 and 11% after 1993 with no best price rebate at any time.

Single source (SS) and innovator multiple source (IMS) drugs, but not non-innovator multiple source (NMS) drugs, are also subject to an additional rebate. This additional, or inflation adjustment, rebate is calculated as the difference between the drug product's change in price when comparing the price in the current period to the price in the baseline period (the quarter ending as September 30, 1990) versus the change in the Consumer Price Index of all items for all urban consumers (CPI-U) over the same time period. If the SS or IMS drug product's price has increased more than the CPI-U over the entire period, the CPI-U inflation percentage is subtracted from the drug product's inflation and the excess inflation, expressed as a percentage of AMP, is due as an additional rebate amount. For example, if the drug product price has increased 20% and the CPI-U for the same period is 11%, the manufacturer owes 9% of AMP per unit as an additional rebate above and beyond the basic minimum and best price rebate amounts.

Because of alleged unintended effects of the 'best price' rebate on prices of pharmaceuticals to a variety of government-funded health programs, Congress passed a revision in the best price rebate to exempt certain government programs from the best price rebate calculation (Veterans Health Care Act of 1992, Public Law 102-585, enacted November 4, 1992 and effective October 1, 1992). Included in this exemption were the Veterans Administration, Department of Defense, Federal Supply Schedule

under the General Services Administration, public health clinics, and state pharmaceutical assistance programs. This change in the best price definition was intended to result in lower prices for drugs purchased by the exempted government programs. To maintain budget neutrality due to exemption of these government agencies from the best price calculation, the Veterans Health Care Act of 1992 increased the minimum rebate from the original 12.5% to: 15.7% for quarters beginning after September 30, 1992 and before January 1, 1994; 15.4% for quarters beginning after December 31, 1993 and before January 1, 1995; 15.2% for quarters beginning after December 31, 1994 and before January 1, 1996; and 15.1% for quarters beginning after December 31, 1995.

As part of the process surrounding passage of OBRA 90 and the initial drug rebate program, pharmaceutical manufacturers negotiated an 'open access' provision that generally prohibited states from using restrictive formularies. Manufacturers agreeing to participate in the rebate program were guaranteed that all FDA approved drugs would be covered for Medicaid patients, except for certain categories of drugs specifically exempted in the legislation.

The drugs and therapeutic categories of drugs specifically mentioned in OBRA 90 which could be excluded from coverage were:

a. Anorexia or weight gain agents.
b. Fertility promotion agents.
c. Cosmetic or hair growth agents.
d. Agents for the symptomatic relief of coughs and colds.
e. Smoking cessation agents.
f. Prescription vitamins and mineral products, except prenatal vitamins and fluoride preparations.
g. Nonprescription drugs.
h. Covered outpatient drugs for which the manufacturer seeks to require (as a condition of sale) that associated tests or monitoring services be purchased exclusively from the manufacturer or its designee.
i. Drugs described in section 107(c)(3) of the Drug Amendments of 1962 (DESI drugs, of questionable efficacy).
j. Barbiturates.
k. Benzodiazepines.

Although OBRA 90 prohibited states from continuing restrictive formularies, there was continued authority to operate, or implement, prior authorization programs under certain conditions. Two such conditions were that states must: (1) respond to prior authorization requests within 24 hours and (2) authorize dispensers to provide the patient with a 72 hour supply of medication in an emergency. Prior authorization programs are intended to restrict utilization of drugs that have a high potential for misuse, abuse, or high cost and expenditures in relation to lower cost alternatives. The 1990 legislation also required that newly approved drugs had to be covered without any form of restriction (e.g., prior authorization) for the first six months after FDA approval. This provision, however, was subsequently repealed by the Omnibus Budget Reconciliation Act of 1993 (OBRA 93, Public Law 103-66, enacted August 10, 1993). OBRA 93 also reversed the prohibition on restrictive formularies and specified that states may establish formularies that meet certain requirements including: the make-up of the formulary committee; reasons for excluding drugs; provisions for coverage of excluded drugs by prior authorization when medically necessary; and other provisions.

State Medicaid agencies were also required to continue, or begin, drug utilization review (DUR) programs by January 1, 1993. These DUR programs have to meet minimum standards specified in the legislation. The drug utilization review (DUR) programs mandated by OBRA 90 were not included in this study, but are the subject of other demonstration and evaluation projects funded by HCFA (Gondek, Kathleen, Project Officer, Medicaid Drug Use Review Demonstration Projects: Report to Congress 1994, U.S. Department of Health and Human Services, Health Care Financing Administration, Office of Research and Demonstrations, June 1994, HCFA Pub. No. 03356).

I.A.3. Roles of HCFA, States, and Manufacturers

with Respect to the Rebate Program

Implementation of the rebate program was accomplished through a complex partnership between the Health Care Financing Administration (HCFA), state Medicaid agencies, and pharmaceutical manufacturers. As the federal executive agency responsible for the Medicaid program, HCFA was given several responsibilities by the legislation including:

(1) Development of a standard rebate agreement to be used with labelers (i.e., pharmaceutical manufacturers, repackagers, distributors)[1];

(2) Establishment and oversight of rebate agreements with labelers that would begin effective January 1, 1991;

(3) Development of lists of common data elements to be provided by states to manufacturers for rebate invoicing purposes and to HCFA for drug utilization reports;

(4) Establishment of drug product rebate files maintaining records on each drug product covered, prices each quarter, and utilization;

(5) Maintenance of a database, using state-supplied utilization by NDC, on state Medicaid drug product utilization and rebates owed; and

(6) Provision to states of quarterly data files with unit rebate amounts (URAs) by NDC, calculated from labeler-supplied information on the AMP and other pricing and rebate factors.

State Medicaid programs were responsible for:

(1) Conversion of state-specific drug coding systems (if used) to the NDC standard drug codes;

(2) Making needed changes to drug product coverage policies, and notifying providers (e.g., physicians and pharmacists) of these policies;

(3) Development of drug product utilization data on a quarterly basis, and computation of rebates amounts due;

(4) Generation of invoices to manufacturers; and

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[1] Throughout this report the term "manufacturer" will be used interchangeably with the terms "labeler", "repackager", and "manufacturer" unless otherwise specified.

(5)   Collection of rebates due from manufacturers, resolution of disputes in utilization or rebate amount due, and return of the federal share of rebates to HCFA.

Pharmaceutical manufacturers were responsible for:

(1)   Signing and returning rebate agreements to HCFA;

(2)   Specifying their drug products to be covered by Medicaid programs and rebates, and specifying unit types (e.g., tablets, milligrams) according to HCFA specifications;

(3)   Providing the AMP price per unit, best price per unit, and baseline (third quarter CY 1990) pricing data for SS and IMS drugs to HCFA on a quarterly basis; and

(4)   Payment of rebates according to state invoices, describing the basis for disputes in utilization, and resolution of those disputes with the state.

I.A.4. Drug Rebate Program Implementation

The OBRA 90 drug rebate legislation included a number of specific operational components including: (1) the minimum percentage component of the basic rebate; (2) the best price component of the basic rebate; (3) an inflation adjustment rebate; (4) a general prohibition of restrictive formularies; (5) open access to new drugs for 6 months after FDA approval (repealed after September 30, 1993); and (6) conditions for operation of prior authorization programs. The rebate amount due to the Medicaid program was dependent upon: (1) the drug product type (i.e., single source (SS), innovator multiple source (IMS), and non-innovator multiple source (NMS)); (2) the average manufacturer price (AMP) for a specific product; and (3) the manufacturer's best price for the same product. Each of the actively participating manufacturers reports the required pricing data on a quarterly basis to HCFA.[2] HCFA uses this information to compute a unit rebate amount (URA). This URA, linked to a unique drug product NDC number, is provided to the states on a data tape. Each state determines the utilization

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[2] In September 1994 there were 534 manufacturers enrolled in the program with 474 actively participating. Sixty manufacturers have been terminated from the rebate program (21 voluntarily and 39 involuntarily). (DHHS, Report To Congress: Medicaid Drug Rebate Program, Baltimore, MD, 1995).

volume of each specific drug product (i.e., for each NDC number, which specifies a certain drug entity, dosage form, strength, package size and type, and manufacturer or labeler) based on Medicaid paid claims data for the quarter. The URA times the number of units utilized results in the amount of rebate due for a specific drug product. If the manufacturer disagrees with the utilization data, a disputed claim may result. Disputed claims may lead to delayed payments and additional administrative costs for both the states and the manufacturer due to generation of specialized reports or audits to estimate or verify the utilization of a specific drug product.

Medicaid drug expenditures net of rebates collected continued to grow (about 30% from CY 1990 to CY 1992; DHHS, Report to Congress: Medicaid Drug Rebate Program, Baltimore, MD, 1993). This increase in expenditures appears to be counter to the intended effect of the OBRA 90 legislation which was intended to slow the rate of price increases for drug products. These increased expenditures may have been due to several factors including: an expansion in number of recipients, above average drug price increases, and the open formulary provision (DHHS, Report to Congress: Medicaid Drug Rebate Program, Baltimore, MD, 1993). Although the program began in January of 1991, rebates were first collected in the third quarter of 1991 for several reasons: (1) some states required time to switch from state-specific drug codes to the HCFA-required standardized NDC numbers; (2) HCFA published the final form of the rebate agreements with manufacturers in the Federal Register on February 21, 1991; (3) states could not bill for rebates until the third calendar quarter of 1991 when HCFA first supplied the unit rebate amounts; and (4) many manufacturers had not set up procedures for processing and paying rebates (DHHS, Report to Congress: Medicaid Drug Rebate Program, Baltimore, MD, 1992). Also, a number of manufacturers challenged the utilization quantities submitted for rebate by the state Medicaid programs. Some manufacturers' challenges disputing utilization of their drugs were legitimate, due to differences in specification of the number of units of a drug product (e.g., 1 pint vs. 480 ml) or pharmacy or state errors in coding. A few manufacturers seem

to have routinely challenged the utilization data for most of their drug products in nearly all states, which added to the program administrative costs.

The actual rebate amounts collected by states during the first few quarters of the program ranged from 7.6% to 9.1% of total drug expenditures (DHHS, Report to Congress: Medicaid Drug Rebate Program, Baltimore, MD, 1992). Rebate collections, however, do not accurately reflect the amount of rebates due or expected, because, as outlined above, the states have had difficulty in preparing invoices and in collecting from manufacturers.

During the first two years of the program, the flow of rebate payments appeared to be considerably slower than the accrual rate for rebates due. More recent reports on rebate program operations suggest that both state Medicaid programs and manufacturers have greatly improved their facility for preparing and processing rebates. At least eleven states have received payments under their own separate rebate agreements in addition to the national rebate agreement.[3] State administrative costs in implementing the Medicaid rebate program have only been evaluated on a limited basis, but appear to show a relatively low state cost for operating the drug rebate program. Federal administrative costs for implementing the provisions of OBRA 90 were estimated at about $1.2 million in the first year (DHHS, Report to Congress: Medicaid Drug Rebate Program, Baltimore, MD, 1993).

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[3] Several states have received rebates under separate state agreements and also received rebates under the national rebate agreement during the same time. The states known to have received state-specific rebates are: Arkansas, California, District of Columbia, Georgia, Idaho, Kansas, Louisiana, Maryland, Massachusetts, Texas, and Virginia (DHHS, Report to Congress: Medicaid Drug Rebate Program, Baltimore, MD, 1992).

I.A.5. Medicaid Drug Expenditures and Rebates

Medicaid drug expenditures grew from $4.4 billion in FY 1990, the year before the rebate program, to $5.4 billion in FY 1991 and $6.8 billion in FY 1992, not accounting for rebates (based on HCFA 2082 data as found in State Benefits Under State Medical Assistance Programs, Reston, VA: National Pharmaceutical Council, annual reports, 1991 to 1993). The annual drug expenditure growth rates were 22.8% and 25.1%, respectively. These growth rates appear quite dramatic in comparison to the 13.9% average annual growth rate experienced between 1985 and 1990. Before drawing any conclusions about the source of this growth in drug expenditures, however, it is important to point out that these expenditure figures have not been adjusted for rebate amounts (either billed or collected), the substantial expansion in the number of persons qualifying for Medicaid, or the effect of open formularies. In addition to establishing the drug rebate program, the OBRA 90 legislation expanded the eligibility criteria for Medicaid. Consequently, the number of drug recipients under Medicaid grew from 17.3 million in 1990 to 19.6 million in 1991 (a 13.3% increase) and to 22.1 million in 1992 (a 12.8% increase). Between 1990 and 1992, the average annual growth rate in number of drug recipients was 12.9%. In contrast, during the five years from 1985 to 1990 the average annual growth rate in drug recipients was only 4.5%

Rebate amounts that accrued to the Medicaid program in the first two calendar years (1991 and 1992) of operation totaled $1.35 billion. During the first two fiscal years (1991 and 1992) the drug rebate amounts accrued were 10.3% of the total Medicaid drug expenditures, $1.26 billion accrued in rebates compared to $12.2 billion spent on prescribed medicines (Health Care Financing Administration, Report to Congress: Medicaid Drug Rebate Program, annual report 1992 and 1993). A detailed, multi-faceted analysis of factors leading to this dramatic change in Medicaid drug expenditures and an assessment of the impact of rebates on total drug expenditures was the focus of this study.

I.B. Medicaid Drug Rebate Program Evaluation

The objectives of this evaluation of the Medicaid drug rebate program and an overview of the evaluation methods and data sources are provided in this section.

I.B.1. Evaluation Objectives

The overall goal of this project was to assess the net impact of the Medicaid drug rebate legislation on access to, utilization of, and expenditures for drugs in the Medicaid population. The primary focus of the study was on change between 1990 (pre-OBRA 90) and 1992 (post-OBRA 90). Several specific research objectives were established to achieve this overall goal:

1. Describe and analyze trends in Medicaid drug program expenditures before and after the OBRA 90 legislation and identify factors contributing to those trends.

2. Document the amount of rebates accrued and collected and their impact on the total Medicaid drug expenditures.

3. Evaluate the overall impact on Medicaid drug expenditures of changes in access to drugs due to discontinuation of restrictive formularies, implementation or modification of prior authorization programs, provision of six months open access after FDA approval of a drug product, and other state drug program policies and characteristics.

4. Assess the impact of "open access" provisions (formulary discontinuation, six month mandatory coverage of products newly approved by FDA, and implementation or modification of prior authorization programs) on the number, mix, and cost of drugs used by Medicaid recipients.

5. Document the administrative costs and rebate program implementation experiences of HCFA and the state Medicaid programs, including both start-up costs and continued operation costs.

6. Determine the overall impact of the OBRA 90 legislation on net Medicaid drug expenditures, after accounting for the effect of rebates, changes in formulary and prior authorization programs, open access for newly approved drugs, and administrative costs.

Completion of this project's research objectives required conduct of several different analyses, utilization of a variety of research methods, and linking of many databases. After briefly describing the analysis plan and an overview of the databases, the limitations of this evaluation are presented.

I.B.2. Evaluation Overview

The Medicaid drug rebate program is very complex and has been superimposed upon an already diverse environment of state Medicaid drug program policies. While it is not possible to enumerate all of the effects and repercussions of this national program on each state Medicaid program, the major effects can be isolated by identifying and controlling for some other known sources of variation. The impact of changes in the number and mix of Medicaid enrollees by eligibility type, changes in drug restrictions such as formularies and prior authorization programs, and changes in manufacturers' drug prices can be determined. Some sources of variation can be described and quantified for nearly all states, but other sources require an extensive analysis of drug program expenditures at the individual prescription level and were, therefore, only practical for those states which had standardized MSIS data files that included prescribed medicines. The administrative impact assessment of the Medicaid drug rebate program required direct input from state and federal Medicaid personnel through on-site and telephone interviews with selected states.

Three different sets of states were used for analysis in this project. First, the aggregate analysis of total Medicaid drug expenditures and rebates both at the national and state levels was performed using data derived from the HCFA Form 2082 reports by the states. One portion of this aggregate analysis examined a breakdown of expenditure and utilization data by basis of eligibility and medical assistance status for a subset of 27 states that had reported recipient and expenditure data broken down at this level for all years from 1988 to 1992. Aggregate rebate payments received were assessed using HCFA estimates drawn from HCFA Form 64 reports. In-depth state case studies of prescribed medicine use, cost and access were conducted on a selected set of nine states. One of these states (Kansas) had problems with enrollment data and was, therefore, left out of certain analyses. The third analytical set involved twelve states studied for the administrative impact of the rebate program. An overview of the components of this project is presented next.

I.B.3. Organization of the Report

In order to achieve the broad range of study objectives previously stated, a variety of specific analyses had to be conducted. This Final Report has five major components: (1) introduction and project overview, (2) aggregate analysis of Medicaid drug expenditures and rebates, (3) in-depth state case study analysis of drug use, cost, and access in nine states, (4) analysis of the administrative impact of the rebate program, and (5) integrated synthesis of the net impact of the Medicaid drug rebate program based on findings from this evaluation. A brief narrative description of each section is presented.

Aggregate analysis of Medicaid drug expenditures. Chapter II reports findings related to Medicaid enrollment, drug recipients, and drug program expenditure trends for all states. This analysis was based on data from the HCFA 2082 forms and information reported in the NPC annual reports (National Pharmaceutical Council, State Benefits Under State Medical Assistance Programs, Reston, VA, annual reports, 1983 to 1994). Yearly data for the national aggregate and for each state individually was compiled for fiscal years from 1983 through 1993. Quarterly rebate data trends were examined for 1991 to 1993 at the national aggregate and state levels where possible. Both national and state trends were reported for Medicaid recipient categories broken down by basis of eligibility (aged, blind, disabled, AFDC-adult, AFDC-child, and other) and medical assistance status (categorically needy cash and non-cash, and medically needy), to the extent possible.

Aggregate analysis of Medicaid drug rebates. Chapter II also reports data on rebate amounts accrued and collected nationally and by each state. Results have been reported for each quarter from the beginning of the rebate program through the end of 1992. The proportion of the rebate due to the minimum rebate, the best price rebate, the inflation adjustment rebate, and the generic rebate was

estimated. The net drug expenditure per drug recipient to Medicaid in 1992, after accounting for rebates was estimated by subtracting the rebates collected from the prescription payments.

State Case Study of Drug Use and Expenditures. Chapter III describes the state case study analysis performed on a subset of states using the prescribed medicine claims found in the other claims (i.e., CLAIMOT) file of the MSIS system merged with Medicaid eligible/recipient characteristics from the MSIS personal summary files. Other data sources were then linked to this person-prescription file, via the NDC number, to provide drug product characteristic and state coverage restriction information. Additional information on each state Medicaid program and its drug program policies was attached to the person-prescription claims file. Due to the extensive file manipulation and cleaning processes necessary to prepare these in-depth analysis files and the fact that the MSIS system had a limited number of states available, only nine states were included in the final analytical set. Data from the second and third fiscal year quarters from 1990 (pre-rebates) and the second and third fiscal year quarters from 1992 (post-rebates) were prepared and analyzed. Date of service files were prepared and the enrollment data was adjusted for eligible-months.

State Case Study of Access to Drugs. Another section in Chapter III describes the analysis of access to drugs in the nine case study states. The number of unique national drug codes (NDCs) and drug entities was evaluated to determine if a wider variety of drug products was used in 1992 versus 1990. The mix of drugs by drug patent status (SS, IMS, NMS) and therapeutic class was also studied to determine if the mix of drugs in specific therapeutic categories changed between 1990 and 1992. The final component of this research objective involves determination of the proportion of drugs with restricted status (i.e., restrictive formulary, prior authorization, or exclusion from coverage) before and after OBRA 90.

Administrative Impact Analysis. This administrative impact analysis is reported in Chapter IV. This assessment of the development and operational experience with the rebate program, and associated costs of the program, was conducted through a series of site visits and extensive telephone interviews with states. Three states were selected for site visits, and telephone interviews were conducted with nine additional states. During the site visits, Medicaid agency representatives' experiences with program implementation were described. The nine state agencies included in the telephone interviews were asked for descriptions of the changes made to prescription drug programs and organization as a result of OBRA 90 and subsequent revisions to the rebate program, and completed detailed cost report forms after the interview. Rebate operations staff at HCFA were also interviewed to obtain their perspectives on the program's development and operation.

I.C. Limitations of The Evaluation

As with any program evaluation, it is important to differentiate the effects of the specific programmatic intervention from other sources of change occurring in the broader environment. For the rebate program, numerous other changes to Medicaid programs, some nationally mandated and others implemented by individual states, were occurring. Prominent among these changes were expansions of Medicaid eligibility to specified groups of persons meeting income and other characteristics specified by statute. Some of these changes were mandated by legislation prior to OBRA 90, and several had their implementation schedules accelerated by OBRA 90 or subsequent legislation. These eligibility expansions had the potential to accelerate expenditure increases among state Medicaid programs.

It is generally desirable to use comparison groups in order to assess the impact of a program independent of other trends. The OBRA 90 drug rebate program, however, was implemented simultaneously in all states, prohibiting the use of "control" states. Furthermore, use of non-Medicaid comparison groups of insured persons would incur the problems of non-comparability of income,

insurance coverage, healthcare providers, and health status, along with a lack of the data that could permit controlling for such characteristics. Additionally, in considering the use of an insured population, the problem arises that many prescription drug claims are not present on private sector insurance data bases due to low-dollar prescription claims which fall below the copayment amounts (often $5 to $10 per prescription) and , therefore, are not in the insurance claims database. State Medicaid programs either have no copayments, or the copayments are so small (e.g., $0.50 or $1) that virtually no claims are left out of the claims database due to prescription prices which fall below the copayment amount. This absence of low-dollar drug claims in private insurance databases would lead to underestimates of total prescription expenditures among the privately insured.

In the absence of adequate control groups, the decomposition analysis presented in the state claims case-study component of this evaluation delineates the relative effects on expenditures of changes in: specific prescription drug prices; statewide enrollment levels; types of eligibles using prescribed drugs; and utilization rates for specific categories of recipients.

Another major limitation is the short timeframe of the analysis periods. Changes in prescribed drug expenditures and utilization were analyzed for two six-month periods, one pre-OBRA 90 (1990 claims) and one post-OBRA 90 (1992 claims). This was largely due to the tremendous size of the data files involved. Ideally, a time series analysis encompassing several time periods prior to, and subsequent to, rebate program implementation could have been conducted.

Other limitations of the study concern the databases available and the scope of the study. First, there were a number of limitations to the databases used in this study. For example, one of the original objectives of this study was assessment of changes in drug use rates as measured by days of therapy per recipient-year rather than number of prescriptions per recipient-year. This level of analysis was not possible, though, due to limitations of the Medicaid Statistical Information System (MSIS) other

claims file, which contains prescription claims. The quantity field for all prescription claims in this data set has been set to '1', meaning one prescription was provided. Prescription claims in most state databases, however, use the National Council for Prescription Drug Programs (NCPDP) uniform prescription claim form which has the number of tablets, capsules, or milliliters in the quantity field allowing multiplication by a factor (e.g., units per day of therapy) to calculate the days of therapy provided by each prescription. Other details of database limitations have been presented in the specific sections of this report where the use of such databases has been described.

Second, the Medicaid drug rebate program has had an impact on pharmaceutical manufacturers, other pharmaceutical purchasers, and many others. The scope of this study's objectives, however, was limited to assessment of the impact of the rebate program on state Medicaid agencies and the Health Care Financing Administration. The study did not attempt to analyze the experience of pharmaceutical manufacturers with the drug rebate program.

Finally, this study limited its evaluation to examination of the expenditures for, and utilization of, outpatient prescribed medicines. Prescribed medicines used in inpatient settings were not included in this study. Also, the effect of the rebate program and related program changes (e.g., discontinuation of restrictive formularies and continuation or implementation of prior authorization procedures) on use of, and expenditures for, all other types of health care services and outcomes (e.g., hospitalizations, physician visits, long term care use, or patient outcomes) was not evaluated by this project.

CHAPTER II.

TRENDS IN MEDICAID DRUG EXPENDITURES

AND REBATES: AN OVERVIEW

An examination of overall trends in Medicaid program expenditures and enrollment is needed to provide a context for evaluation of changes in drug program expenditures due to the rebate program. Such an assessment of broader trends is especially important, since the OBRA '90 legislation established an expansion of eligibility criteria for medical assistance benefits at the same time that the drug rebate program was enacted. This chapter presents an overview of Medicaid drug expenditures and rebates organized into four sections: (1) methods of assessing aggregate trends in Medicaid drug expenditures and rebates, (2) national drug expenditure trends, (3) drug expenditure trends for specific Medicaid subpopulations, and (4) drug expenditure trends across the states.

II.A. Method of Assessing Aggregate Trends in
Medicaid Drug Expenditures and Rebates

This assessment of trends in Medicaid drug expenditures, enrollment, and rebates is based on several data sources. Each of the major data sources is briefly described. Next, a framework for disaggregating the role of various sources contributing to Medicaid drug expenditures is outlined.

II.A.1. Medicaid Data Sources

Data for this overview has been drawn from three principal sources. First, state-specific and national aggregate data were drawn from the Health Care Financing Administration's (HCFA) Form 2082 and Form 64 reports. Second, additional Medicaid drug expenditure, enrollment, and

pharmaceutical program data were extracted from the annual reports titled, *Pharmaceutical Benefits Under State Medical Assistance Programs* (Reston, VA: National Pharmaceutical Council, annual reports from 1975 to 1994). A third reference, used primarily as a source of information on Medicaid drug rebate trends, was the set of annual reports published by HCFA titled, *Report to Congress: Medicaid Drug Rebate Program (Baltimore, MD: Health Care Financing Administration, 1992, 1993, and 1995)*. Each of these data sources and related limitations is briefly discussed.

HCFA Form 2082 and Form 64 Reports. Medicaid enrollment and expenditure data is reported by each state to the Health Care Financing Administration (HCFA) on a quarterly and an annual basis. The data are reported to HCFA on *Form 2082, Statistical Report on Medical Care: Eligibles, Recipients, Payments, and Services*. Form 2082 is prepared by the state and submitted to HCFA, or generated by HCFA for states participating in MSIS, at the end of each fiscal year, which extends from October 1 through September 30 in the subsequent year. HCFA also collects information on a quarterly basis on Form 64 which includes not only data on expenditures and recipients, but also rebate payment collections. While HCFA performs a number of edits on the data reported by each state to test for internal data consistency, HCFA clearly notes that it cannot guarantee the accuracy of the Form 2082 data. Although this data has limitations, it is useful for examining trends from a broad perspective on Medicaid program expenditures and enrollment over time. For purposes of this report, data at the national aggregate level was extracted for the period 1975 to 1993 and data on a state-by-state basis was compiled for the period 1982 to 1993. This time frame provides an overall trend line prior to, and after, implementation of OBRA '90.

National Pharmaceutical Council's Medicaid Pharmaceutical Benefits Annual Reports. The second data source is published by the National Pharmaceutical Council (NPC) on an annual basis. This reference publication, known as *Pharmaceutical Benefits Under State Medical Assistance Programs*, draws its data from the HCFA Form 2082 and from interviews of state Medicaid personnel.

Since this publication derives most of its data primarily from the HCFA 2082 Form, the NPC reports are subject to the same limitations as those described above for the 2082 Form. Data for this analysis was drawn from annual NPC reports dating from 1975 through 1994. Additionally, the NPC collects data directly from state Medicaid agencies. State-specific data on drug expenditures and recipients subdivided by basis of eligibility and medical assistance status were drawn from the NPC reports with data covering the years 1988 to 1992.

Limitations of the NPC annual reports and the HCFA 2082 data from which the NPC draws most of its data were examined under a HCFA contract (Ross-Degnan, Dennis, Stephen B. Soumerai, Stephen Long, and Sherry Hawley, Feasibility of Using Aggregate Annual Data for Evaluating the Impacts of Medicaid Pharmaceutical Cost Containment Policies, Cooperative Agreement No. 99-C-98489/9-07, November 1993). These evaluators concluded that "HCFA 2082 data seem reasonably reliable for depicting national trends in utilization and expenditures. The national aggregate data for subgroups like the elderly also seem internally consistent over time." While this data may prove useful for broad policy research, the authors suggest that measurement of second-order effects resulting from policy changes would be best carried out using more detailed patient-level analysis of claims data. Detailed patient-level data is necessary to adjustment for discontinuous enrollment, or enrollment-months, and development of date of service prescription claims files are needed to obtain accurate prescription utilization rates. For these reasons, this study employed a detailed state case study analysis using person and prescription claims level data, as described in Chapter III.

Reports to Congress on Medicaid Rebate Program. Information on the Medicaid drug rebate program was extracted from HCFA's annual reports titled, *Report to Congress: Medicaid Drug Rebate Program* (Health Care Financing Administration, 1992, 1993, and 1995). HCFA estimates of rebates collected from the HCFA Form 64 reports reported on a quarterly basis were also utilized. The primary source of data for HCFA's Reports to Congress was the HCFA Medicaid Rebate file, which contains

data on each participating manufacturer's products, manufacturer pricing, and state-reported drug utilization data. These annual and quarterly reports included an aggregate national amount of rebates accrued to state Medicaid programs based on drug utilization for each quarter from the first calendar quarter of 1991 to the fourth calendar quarter of 1992. HCFA does not guarantee the accuracy of each state's self-reported utilization data. Rebate amounts received were reported by states for each quarter from quarter 3 of calendar year 1991 through quarter 4 of calendar year 1993.

During the first year of the rebate program, problems were experienced in standardizing the units for reporting drug utilization data. HCFA has worked closely with the states and manufacturers to resolve these unit definition problems and, according to HCFA personnel, data after the first year of the program is considered to be relatively clean with respect to standardized units. Although the Medicaid drug rebate program began on January 1, 1991, no state invoiced for, or received, any rebate amounts under this rebate program prior to the third quarter of calendar year 1991.

II.A.2. Framework for Disaggregating Medicaid Drug Expenditures

The objective of this analysis was to determine overall trends in the growth of Medicaid drug expenditures and factors contributing to that growth. Medicaid drug expenditure trends can be broken down into changes in several underlying factors: number and mix of drug recipients, intensity of drug use (prescriptions per recipient per year), changes in payments per prescription, and general inflation. The relative contribution of each of these components to changes in Medicaid drug expenditures can be examined by disaggregating total drug expenditures as follows:

Total drug expenditures =
[population x intensity x cost efficiency] + administrative costs - rebates.
[(# of persons) x (Rx's/person/year) x (payment/Rx)] + administrative costs - rebates collected

Total drug expenditures can be calculated as the product of the population covered (number of persons) times the intensity (prescriptions per person per year) times cost efficiency (payment per prescription) with administrative costs added and rebates subtracted from this product. The population covered is a function of the number of medical assistance recipients covered times the percent of medical assistance recipients who are drug recipients. Intensity is represented by the total number of prescriptions per year divided by the number of drug recipients per year. The cost efficiency component is the expenditure, or payment, per prescription which can be further broken down into the dispensing fee payment per prescription and the drug product payment per prescription. The administrative cost of operating the Medicaid drug program, if known, should be added to the direct expenditures for prescriptions. However, since neither the HCFA 2082 reports nor any other known source estimates the administrative costs of operating the Medicaid drug program, this factor will be ignored in the trend analysis. Finally, the drug rebates established by OBRA '90 must be subtracted from the drug expenditure amount to determine the net drug expenditure.

Drug expenditures can also be disaggregated in a similar manner for each state and for specific recipient groups within each state. Subgroups of recipients may be defined by basis of eligibility (i.e., aged, disabled, blind, AFDC-adults, AFDC-children, and other) or medical assistance status (i.e., categorically needy recipients receiving cash payments, categorically needy recipients not receiving cash payments, and medically needy recipients).

Several basic data elements required for performing this disaggregation of Medicaid drug expenditures were extracted from the HCFA 2082 reports, the NPC reports, and the Report to Congress of the drug rebate program. The data elements were: (1) the number of recipients of any form of medical assistance; (2) the number of drug recipients; (3) the total expenditures for all medical services; (4) the drug expenditures; (5) the average payment per prescription; (6) the pharmacy fee

payment per prescription; and (7) the total amount of drug manufacturer rebates received. Values for all monetary variables were collected in nominal, or current year, dollars.

A number of other indicators were calculated from the basic data elements extracted. These additional indicators and their derivation is briefly described. Also, data for each monetary variable were converted to constant dollars to determine the real change in expenditure. Constant dollar amounts were calculated by multiplying current year dollar amounts times the CPI deflator (U.S. Bureau of the Census, *Statistical Abstract of the United States: 1994* (114th edition), Washington, DC, 1994, Table 746, page 487).

Expenditure Indicators. In addition to total medical expenditures and drug expenditures, one other expenditure-related indicator was derived. Drug expenditures as a percent of total medical expenditures were calculated to allow tracking of the relative role of prescribed drugs in the Medicaid program.

Population Indicators. Both the number of drug and total medical assistance recipients were found in the state-reported data sets. These two data elements were used to examine drug recipients as a percent of total recipients. Variations in the mix of recipients by type (i.e., basis of eligibility or medical assistance status) can influence both total drug expenditures and the average drug expenditure per recipient. Changes in the mix of recipients were examined for each state which reported such data. Consistent data across the years 1988 to 1992 was found for 27 states in the HCFA 2082 data as presented in the NPC reports.[1] Comparisons of similar recipient groups can indicate whether or not

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[1] Only 27 states reported drug recipients and drug expenditures broken down by basis of eligibility in each year from 1988 to 1992. The 27 states with complete breakdown data in the NPC annual reports were: Alabama, Arkansas, California, Georgia, Idaho, Indiana, Iowa, Kentucky, Maine, Maryland, Mississippi, Missouri, Montana, New Hampshire, New Jersey, New Mexico, New York, North Carolina, North Dakota, Oklahoma, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Vermont, and Washington,

variations in state drug expenditures per drug recipient are due to a different mix of recipients (e.g., aged vs. disabled/blind vs. AFDC-adult vs. AFDC-child), a difference in payments per prescription, or a combination.

Intensity Indicators. Intensity factors are expressed as a value per person per time period. The time period chosen for this analysis was one year. The number of medical assistance recipients varies over time due to changes in state and federal eligibility policies and due to variations in enrollee need. The effect of changes in number of medical assistance recipients can be neutralized by calculating expenditures per medical assistance recipient per year. These expenditure levels are examined both in current and in constant dollars. The drug expenditures per medical assistance recipient will differ from the drug expenditures per drug recipient since not all medical assistance recipients need, or receive prescribed medications. A change in prescription utilization intensity over time would be expected to have a direct influence on drug expenditures.

The percent of medical assistance recipients receiving prescribed drugs was estimated by dividing the number of drug recipients by the total number of medical assistance recipients. Expenditure rates per recipient per year were calculated for each of the following: total medical expenditures per total recipient, drug expenditures per total recipient, and drug expenditures per drug recipient. In each case the relevant expenditure amount was divided by the number of recipients of the respective type.

Intensity can also be examined as units of service used per person per year. In the case of the prescription drug benefit, the unit of service can be defined as the number of prescriptions received per person per year. The total number of prescriptions dispensed in a given year was estimated on a state-specific basis by dividing the drug expenditure amount by the average prescription payment. This approach provided a consistent estimate of the number of prescriptions across all states. Not all states

reported specific data on the number of prescriptions and, in some states that reported a number, the number was not internally consistent with other state data on drug expenditures and use. Two intensity of use rates were derived: prescriptions per total recipient per year and prescriptions per drug recipient per year. These indicators were calculated by dividing the annual number of prescriptions by the respective, total or drug, number of recipients.

Cost Efficiency Indicators. Cost efficiency indicators are concerned with the cost, or expenditure, per unit of service. In this case, prescriptions are the basic unit of service. The expenditure per prescription can vary because of changes in pharmacy fees, drug product payment, the mix of drugs used, or the quantity of medication dispensed per prescription. By subtracting the allowed pharmacy dispensing fee amount per prescription from the average amount paid per prescription, the drug product payment per prescription can be estimated.

Medicaid regulations specify that the pharmacy payment must not exceed payment levels that the state has set by applying the 'lower of': (1) the pharmacy's usual and customary charge, (2) the drug product payment based on estimated acquisition cost (EAC) plus the dispensing fee, or (3) the drug product payment based on the federal financial participation limit (maximum allowable cost or MAC amount per unit) for multiple source drug products plus the dispensing fee. By subtracting the dispensing fee amount, even though it will be equal to, or more than, the amount paid, the drug product payment estimate will be a conservative amount (i.e., an underestimate). The dispensing fee and the drug product payments were examined both in current and constant year dollars to determine the effect of general inflation and the amount of real growth in each component.

Payments for the drug product component can be influenced by a number of factors, as noted earlier. Neither the HCFA 2082 reports nor the NPC reports provided information to allow disaggregation of the drug product payment into its components. Consequently, the variations in drug

product payments over time derived from the HCFA Form 2082 reports represent an indistinguishable combination of changes due to drug price inflation, mix of drugs used (i.e., brand versus generic as well as shifts across therapeutic categories or due to formulary or prior authorization restrictions), and the quantity dispensed per prescription (i.e., number of tablets or capsules or days supply).

The average payment per prescription and the average pharmacy dispensing fee payment per prescription were basic data elements reported for each state in the annual NPC reports. For those few states with missing data for a specific year, the missing data value was estimated by averaging the value for the year immediately preceding and the year immediately following the missing value. The national aggregate value for average prescription payment was derived by calculating a weighted average across all states with number of prescriptions in each state as the weighting factor.[2] This weighting factor was chosen since the number of prescriptions times the average payment per prescription equals total drug expenditures.

The drug product payment per prescription was derived from the state-level data presented in the NPC reports. The drug product payment plus the pharmacy dispensing fee payment per prescription equal the average prescription payment. Thus, the drug product payment per prescription was derived by subtracting the average pharmacy dispensing fee payment per prescription from the average payment per prescription. In order to examine the relative contribution of the drug product payment and the pharmacy dispensing fee payment to the average payment per prescription, each of these factors was shown as a percentage of the average prescription payment. Each of these indicators was calculated by dividing the component payment amount per prescription by the average payment per prescription.

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[2] Several states had variable dispensing fees and the NPC annual reports provided a range for the dispensing fees paid. For those states with a variable dispensing fee, the midpoint dispensing fee amounts were used in place of the average dispensing fee when calculating the national aggregate weighted average dispensing fee.

Drug Rebate Indicators. OBRA '90 established a uniform Medicaid drug rebate program accessible to all states which was to be implemented on January 1, 1991. Because of the short lead time to organize and implement the program both HCFA and the states were not able to have the program operational until mid-1991, although rebates applied and were collected retroactively to January 1, 1991. States were permitted to pursue additional rebates on their own, this analysis focuses only on those rebates resulting from the national rebate program authorized under OBRA '90. The rebate amounts accrued, or attributable to a state's drug utilization as reported quarterly to HCFA, were used by HCFA to estimate the amount of rebates due for each quarter in each state. National estimates of rebates due were made by summing the respective amounts across all states reporting in a given quarter.

The rebate amounts reported to HCFA as actually received by states have been presented in annual editions of the Report to Congress on Medicaid Drug Rebate Program (1992, 1993, and 1995). These Reports to Congress include data for each state's rebate receipts. HCFA Form 64 data, which reports rebate amounts collected, were used by HCFA to estimate the rebates collected at the state level.

Several drug rebate indicators were computed for each state and at the national aggregate level using the total amount of rebates received (1991 to 1993). First, the amount of rebates received in each fiscal year was subtracted from the total drug expenditures for that year to determine the total drug expenditures after rebates. Next, the rebate amount per prescription was calculated by dividing the total rebate amount received by the number of prescriptions dispensed in a given year. An average payment after rebates per prescription was derived by subtracting the rebate amount per prescription from the average payment per prescription. Next, a drug product payment after rebates per prescription was computed by subtracting the rebate amount per prescription from the drug product payment per prescription. Finally, the drug expenditure after rebates per drug recipient per year was determined by

multiplying the average prescription payment after rebates times the number of prescriptions per drug recipient per year.

This framework for decomposing total drug expenditures was applied to drug expenditures at the national aggregate level, at the specific subgroup of recipients level, and at the state level over time.

II.B. National Drug Expenditure Trends: 1975 to 1993

Medicaid drug expenditures at the national aggregate level were reviewed to determine overall trends from 1975 to 1993. Discussion of the components influencing drug expenditures has been divided into the following sections: expenditures, population, intensity, cost efficiency, drug rebates, and sources of expenditure growth.

II.B.1. Expenditures

Drug and total medical expenditures for Medicaid increased about ten-fold between 1975 and 1993 in current year dollars (Table II.1). Medicaid drug expenditures in 1975 totaled $815 million and by 1993 had reached nearly $8 billion (Figure II.1) based on HCFA Form 2082 data.[3] When converted to constant dollars (1975), drug expenditures grew from $815 million to nearly $3 billion which represents more than a three-fold increase in real terms. Since 1983 drug expenditures have increased at double-digit rates and have outpaced the growth rate for total medical expenditures in the Medicaid program. Drug payments grew from 5.4% to 7.8% of total medical expenditures between 1982 and 1993. Drug payments represented a larger share of Medicaid total vendor payments in 1993 than did physician payments at 7.8% and 6.8%, respectively.

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[3] Medicaid drug expenditures in 1993, at the national aggregate level, were estimated to be $8.3 billion when derived from HCFA Form 64 data.

Recent growth in total medical payments and drug payments has been particularly strong. Total medical payments in 1993 increased 109% since the 1988 payment level and more than 56% since 1990. Drug payments before rebates in 1993 represent an even more dramatic increase with 1993 payments 142% greater than in 1988 and 80% over the 1990 payment level.

II.B.2. Population

The number of persons eligible for Medicaid at any point in time is difficult to determine. The total number of persons receiving any type of medical assistance service during a given period can be used as a functional proxy for total eligibles. The number of total Medicaid recipients remained remarkably stable at 21 million to 23 million recipients per year during the period 1975 to 1988 (Table II.1 and Figure II.2). Both total and drug recipients have expanded considerably in the last five years. Since 1988 the number of total Medicaid recipients has grown more than 42%, reaching 32.7 million recipients in 1993. Medicaid drug recipients expanded even faster than total recipients with the 23.9 million drug recipients in 1993 representing a 43% increase over the 15.3 million drug recipients in 1988 and a 29% increase over the 17.3 million drug recipients in 1990.

The expanded Medicaid population in the five-year period, 1988 to 1993, appears to be more likely to use prescribed medications than recipients previously enrolled. Drug recipients have grown as a percent of total medical assistance recipients. In 1988, 67% of total medical assistance recipients were drug recipients, and the percentage in 1993 grew to more than 73%.

II.B.3. Intensity

Intensity indicators are not directly influenced by changes in the number of enrollees, because the focus is on expenditures or units of service per person. Changes in the mix of enrollee types (e.g.,

aged, AFDC-adults, AFDC-child, disabled, etc.), however, can result in a change in the average expenditure per person or the average units of service utilized per person. The intensity of drug expenditures per drug recipient has grown steadily over the past two decades. The drug expenditure per drug recipient was $57.58 per year in 1975, $128.97 in 1983, and $333.50 in 1993 (Table II.2a and Figure II.3), representing an increase of nearly six-fold since 1975. The drug expenditure per total recipient also increased more than six-fold between 1975 and 1993, growing from $37.03 to $243.94.

Drug use intensity is measured as prescriptions per drug recipient per year. During the last two decades this intensity measure has grown gradually. In 1975 the average Medicaid drug recipient used 12.4 prescriptions per year. By 1983 drug recipients were receiving 13.0 prescriptions per year, and in 1993 they averaged 14.6 prescriptions annually (Table II.2a and II.2b and Figure II.4). When the number of prescriptions received annually is averaged across total Medicaid recipients the use rate grew from 8.0 prescriptions in 1975 to 10.7 prescriptions in 1993.

Drug expenditures per drug recipient have been growing at a faster rate than the number of prescriptions per recipient, indicating that a major portion of the growth in drug expenditure intensity is coming from growth in payments per prescription rather than from the number of prescriptions used. The annual rate of change in drug expenditures per drug recipient in both current and constant dollars has routinely grown faster than the number of prescriptions per drug recipient per year (Figure II.5). The annual rate of change in drug expenditure intensity (drug expenditures per drug recipient per year) over the last decade has ranged from 8% to 12% increases. The drug use intensity had annual rates of change ranging from -3% to +3% over the last ten years. From 1988 to 1993 the drug use intensity for drug recipients has grown less than 1%. Increases in drug use intensity do not appear to be a major factor in the growth of prescription expenditures in recent years.

II.B.4. Cost Efficiency

Cost efficiency indicators are measures of expenditures or payments per unit of service. The primary efficiency factor for the Medicaid drug program is the expenditure per prescription. The average Medicaid payment per prescription in 1975 was $4.64. By 1983 the average prescription payment was $9.93, and it reached $22.85 in 1993 (Table II.2a and II.2b and Figure II.6). This represents nearly a five-fold increase in payment per prescription since 1975. When converted to constant dollars (1993), the average prescription payment was relatively stable in the late 1970s, but has steadily increased in real dollar terms since the early 1980s (Table II.2b and Figure II.7).

The average payment per prescription can be subdivided into two components: the drug product payment and the dispensing fee payment. The average payment for each of these components has grown in current year dollars. The dispensing fee payment grew from $2.18 in 1975 to $4.11 in 1993, less than a two-fold increase over this 18-year period (Figure II.6). In contrast, the average drug product payment has grown from $2.46 per prescription in 1975 to $18.74 in 1993, more than a seven-fold growth in this period. When payments for these two components are examined in constant dollars (1993) over this time period, the contrast in change between these two components becomes obvious. The average dispensing fee payment actually decreased in constant dollars (1993) from $5.84 in 1975 to $4.11 in 1993 (Figure II.7), representing a 30% decline in real dollar terms. At the same time, the average drug product payment grew in constant dollars (1993) from $5.69 in 1975 to $18.74 in 1993. This accounts for more than a three-fold growth of drug product payments in real dollar terms.

II.B.5. Drug Rebates

Drug rebates for the Medicaid program were legislated by OBRA '90. Each state bills manufacturers for rebates based on utilization data and the specified unit rebate amount (URA). The amount of the rebate is to be paid to the state within 38 days of the postmark date for the invoice. The amount of rebates collected by a state Medicaid program must be subtracted from the total drug expenditures in order to determine the net expenditures for the drug program. Most states, and HCFA, do not report drug program expenditures as an amount net of rebates. When drug expenditures are examined as an amount net of rebates, one gets a different perception of drug expenditure trends.

In fiscal year 1991 the rebate program had just begun. Rebates were first invoiced and collected during the third CY quarter of 1991 (fourth FY quarter), totaling about $110 million (Table II.3a and II.3b). During FY 1992 states reported collecting around $900 million in rebates. Rebate collections for FY 1993 reached about $1.41 billion. These rebate payments resulted in a 4.6% reduction in FY 1991 drug expenditures, a 13.0% reduction in FY 1992 drug expenditures, and a 17% reduction in FY 1993 drug expenditures (Table II.4 and Figure II.1).

The impact of the rebate payments on Medicaid drug expenditure trends was reviewed in several ways. First, the drug expenditure per drug recipient was calculated after subtraction of rebate amounts collected. Although the total drug expenditure per drug recipient in 1993 was $333.50, this figure falls to $274.37 when collected rebates are subtracted (Figure II.3 and Tables II.2a and II.3a). When adjusted for inflation (1993 constant dollars), the 1993 drug expenditure ($274.37) net of collected rebates per drug recipient is less than the 1990 drug expenditure per drug recipient ($282.11) experienced three years earlier, and nearly as low as the 1989 amount of $269.53. In other words, the rebate program has resulted in the drug expenditure per drug recipient, in constant dollars, leveling off over the first three years of the program.

Another place where the impact of the drug rebate program can be seen is in the average prescription payment. When rebates collected per prescription were subtracted from the average prescription payment, the average prescription payment in 1993 decreased from $22.85 to $1ₒ.80 in current dollars, a 17.7% reduction (Figure II.6). This lower prescription payment amount net of collected rebates means that Medicaid was paying less for the average prescription in 1993 than it paid in 1991 ($18.80 versus $18.88). After adjusting for inflation (1993 constant dollars), the average prescription payment less rebates collected in FY 1993 ($18.80, Table II.3b) was less than the average Medicaid prescription payment experienced four years earlier in 1989 ($19.08, Table II.3b).

Rebates Accrued and Collected. The amount of rebates due to a particular state is based upon documented utilization of drug products and the unit rebate amounts reported by the manufacturers. When prescriptions have been dispensed and paid for by a state Medicaid program, a rebate amount is due and is considered to have accrued. After this rebate amount has accrued the state must invoice the manufacturer and collect the rebates due. As discussed in Chapter IV, the administrative process for collecting rebates has evolved and improved since the inception of the program. Rebates began accruing in the first quarter of CY 1991, but states did not collect their first rebate payments until the third quarter of CY 1991. This delay was due, in part, to the very short implementation timeline given by Congress and, in part, to the natural lag time built into the program; that is, collecting utilization data, preparing and sending invoices, waiting for payment of invoices, and resolving disputes.

Rebates in the amount of $100 million were estimated to have accrued in the first quarter of CY 1991 (Figure II.8, Table II.4). The first rebate payments received by most states were collected in the third quarter of CY 1991 when about $100 million was received. After the first quarter of 1992, however, the rebate amounts collected exceeded the rebate amounts accrued in each quarter. This situation has occurred due to the three to six-month delay in sending the initial invoices in 1991 and to the natural lag time resulting from collecting data for an entire quarter, invoicing manufacturers, and

collecting payments from manufacturers. By the fourth quarter of CY 1993, $257 million in rebates accrued and $411 million in rebates were collected across all participating states.

On a cumulative basis the proportion of rebates collected over rebates accrued was very low in the first year of the program. By the end of CY 1991 the participating states had collected $251 million of the $612 million in rebates accrued. This proportion improved substantially in CY 1992, and by the fourth quarter of CY 1992 the states had collected rebates of $1.35 billion out of $1.54 billion which had accrued (Figure II.9 and Table II.4).

Contribution by Type of Rebates. There are two general types of rebates and the amount of rebate due is a function of the type of drug product and the pricing practices of the manufacturer. The rebate types are: (1) the innovator (SS and IMS drug products) rebate which is (a) the larger of the *basic* rebate based on the minimum rebate percentage applicable for each quarter and year according to current legislative statute and the *best price* rebate which is difference between the AMP and the best price plus (b) an *additional (inflation adjustment)* rebate if AMP has risen faster than the CPI-u; and (2) the *non-innovator* rebate (NMS or generic drug products) which is based on the applicable minimum rebate percentage (11%). Drug products have been classified by the rebate legislation as single source (SS; i.e., still protected by a patent or another form of market exclusivity), innovator multiple source (IMS; an original marketers product which now has one or more competitors on the market), and non-innovator multiple source (NMS; non-originator versions of products which have lost their exclusivity). A brief analysis was performed at the national level using information HCFA estimates. The purpose of this added analysis was to describe the relative proportion of the total rebate amount that is derived from each of the following: the minimum rebate, the best price provision, the additional (inflation adjustment) rebate, and the minimum generic (NMS) rebate.

In the first two years of the program, the *basic rebate* amount was the minimum amount due for SS and IMS drugs. A rebate amount of 12.5% of the average manufacturer price (AMP) was due for SS and IMS drug products. During CY 1992, the basic rebate component contributed between $78 and $106 million per quarter which represented about 39% of the total rebates accrued (Figure II.10a, II.10b, II.10c, and Table II.5). According to rebate program revisions contained in the Veterans Health Care Act of 1992 the minimum basic rebate was increased to 15.7% of AMP beginning with the fourth quarter of CY 1992 and continuing during CY 1993. For CY 1994 the minimum rebate percentage was set at 15.4%, for CY 1995 it was set at 15.2%, and after 1995 the minimum percentage will be 15.1%.

A *best price* rebate is due beyond the basic minimum rebate if the manufacturer sells the product at a lower price to any customer not exempted by either the original legislation or the Veterans Health Care Act of 1992. The best price rebate is the difference between the AMP and the best price. During the first two years of the program (1991 and 1992), the best price rebate was capped at no more the 25% and 50% of the AMP, respectively. In the first year of the rebate program the best price contributed $30 to $50 million per quarter in accrued rebates, or 28% of rebates accrued. The 1992 contribution of the best price component increased to about 34% of rebates accrued which was $60 to $80 million per quarter (Figure II.10a, II.10b, and II.10c, and Table II.5).

The *additional* rebate was added as a means to neutralize the manufacturer's steadily increasing prices to the Medicaid program. This rebate applies to the SS and IMS drug, but not the NMS drugs. The rebate is calculated by comparing the rate of general inflation (as measured by the CPI-u) since October of 1990 with the rate of change in each drug product over the same time period. An additional rebate amount is due above and beyond the basic and best price rebates for each percentage point, or fraction thereof, by which the drug product inflation exceeded the general inflation rate. That is, if a drug's price had increased 12% cumulatively since October 1990 and the general inflation rate over that period was 6%, the manufacturer would owe an additional rebate of 6% of the

AMP. The additional rebate has grown over time from 21% of the total accrued rebate in 1991 to 26% of the rebate amount accrued in 1992 (Figure II.10a, II.10b, and II.10c, and Table II.5). This inflation-adjustment rebate contributed $69 million in the fourth quarter of CY 1992 and is expected to continuously grow as a proportion of the total rebate over time due to the cumulative nature of its inflation index.

The non-innovator, or generic, rebate is due on all non-originator drug products. These NMS drug products are not subject to the best price or additional (inflation adjustment) rebates. The non-innovator rebate is set by a fixed, minimum percentage equal to 10% of the AMP from 1991 to 1993 and 11% of the AMP after 1993. The NMS rebate has contributed $2 to $3 million of accrued rebate per quarter. This NMS rebate amount represents about 1% of the total accrued rebates, and this percentage has been shrinking over time (Figure II.10a and Table II.5).

The basic rebate for SS and IMS drugs was increased from 12.5% to 15.7% of AMP in the fourth quarter of 1992 by the Veterans Health Care Act of 1992, as described earlier. This growth in the minimum percentage for the basic rebate can be seen in the rebate amounts over time with a jump in the basic rebate amount (less best price contribution) in the fourth quarter of CY 1992 (Figure II.10b and Table II.5). The NMS rebate had a scheduled, one time increase from 10% to 11% at the end of 1993, but otherwise is not expected to change without legislative action. The contribution of the best price to the rebate amount will vary depending upon pharmaceutical manufacturers' pricing practices to favored customers which are not exempt from the best price calculation, as described earlier. The additional (inflation adjustment) rebate has been growing both in amount and as a percentage of total rebates accrued. Since drug product prices have been growing to date, and are expected to continue growing, at or above the rate of general inflation (CPI-u, all items), the additional rebate should continue to grow in importance as a part of the total rebate amount.

Rebates accrued were found to average around 11% to 14% of total Medicaid drug expenditures in 1992 and 1993. On the surface this proportion appears low, but one must remember that total drug expenditures also include dispensing fee payments. These dispensing fee payments account for about 18% of the total drug expenditures. When dispensing fee payments are subtracted from total drug payments, the rebate amount rises to approximately 14% to 15% of the remaining drug product payment amount.

II.B.6. Sources of Expenditure Growth

Many factors influence the expenditure level of the Medicaid drug program. Several of the major factors have been reviewed and summarized including: expansion of eligibles, payment per prescription, dispensing fee per prescription, general inflation, and rebates accrued. An examination of the rates of change in number of drug recipients and the amount of drug expenditures (Figure II.12) suggests that there is a direct relationship between number of drug users and total amount of drug expenditures. One should also note that drug expenditures have consistently grown faster than the number of drug recipients over the past two decades. The percentage change in each factor from 1988 to 1993 was determined (Figure II.13). The drug program expenditures (current dollars) increased 141.9% over this 5-year period before accounting for rebates and 99.0% after adjustment for rebates accrued. When general inflation (21.9%) over this 5-year period is taken into account, the drug expenditures (1993 constant dollars) increased 98.5% before rebates and 63.3% after rebates.

The single largest factor contributing to the growth in drug expenditures between 1988 and 1993 before adjustments for inflation or rebates accrued was payment amount per prescription for the drug product. This factor showed a 66.3% increase in current dollars and a 36.4% growth in constant (1993) dollars (Figure II.13). Close behind in growth rate for this 5-year period was the expansion of eligibles which resulted in 55.9% jump in drug recipients. The growth of drug recipients does not

change with adjustment for inflation or rebates, leaving this factor as the single largest factor contributing to growth in drug expenditures after other factors have been adjusted (Figure II.14). Drug use intensity grew by only 0.4% between 1988 and 1993, and like drug recipients, this factor is not affected by adjustments for rebates or inflation. With adjustments for rebates accrued and general inflation (21.9% over the 5-year period), the average prescription payment grew 4.3% while the drug product payment grew by 6.9% and the dispensing fee payment decreased 4.3% (Figure II.14).

The relative contribution of each factor leading to growth in Medicaid drug expenditures from 1988 to 1993 can be estimated by determining the expected expenditure change from that factor while holding each of the other factors constant over the five year period (Figure II.15). The growth in number of drug recipients appeared to be the single largest growth factor over the past five years (Figure II.14). If no growth had occurred in the number of eligibles or recipients (i.e., if drug recipients had remained at 15.9 million rather than growing to 23.9 million) the estimated drug expenditures in 1993 would have been $5.1 billion instead of $8.0 billion (Figure II.15). The general inflation rate for this five-year period was about 22% (CPI-U all items). After factoring in this general inflation component, the 1993 drug expenditure would have been $4.2 billion in 1988 constant dollars. Finally, the rebates accrued from 1991 to 1993 have further reduced the 1993 net Medicaid drug expenditure to about $3.1 billion in 1988 constant dollars. In summary, more than one-half of the growth in drug expenditures was attributable to recipient growth, about one-fifth was due to general inflation, and nearly one-fourth was due to increased payments to pharmaceutical manufacturers, through community pharmacies, which are later recovered by the state in the form of rebates payments.

II.C. Drug Expenditure Trends for
Specific Medicaid Subpopulations

The drug expenditure levels in a Medicaid program can be influenced, not only by the growth in recipients, but also by changes in the mix of types of recipients. Certain types of Medicaid recipients utilize more prescription medications and health care services than others. A brief look at general trends in drug expenditures by recipient type is presented.

This analysis of general trends draws upon the data from the HCFA 2082 forms as reported in the annual editions of State Pharmaceutical Benefits Under Medical Assistance Programs (Reston, VA: National Pharmaceutical Council, various years). Not all states report drug recipients and drug expenditures by recipient type. A set of 27 states was found to have reported such a breakdown for every year from 1988 to 1992. These 27 states accounted for about 64% of national drug expenditures over this time period and were considered to be broadly representative. The trends reported are for these 27 states.

Persons become eligible for Medicaid by a variety of criteria. These criteria are legislated at the federal level, with some discretion at the state level. Medicaid eligibles can be broadly grouped in two ways: (1) basis of eligibility and (2) medical assistance status. The basis of eligibility includes persons such as the aged, disabled, blind, persons receiving aid for families with dependent children (AFDC) including AFDC-adults and AFDC-children, and various other persons. The medical assistance status encompasses three general groups: the categorically needy who do not receive cash payments, categorically needy who receive cash payments and the medically needy.

II.C.1. Recipients and Expenditures

The first trend examined was the relationship between number of recipients and amount of drug expenditures (Figure II.16). All persons classified as other or unclassified were treated as missing for purposes of this examination. Drug recipients and expenditures were grouped into four categories: aged, disabled and blind, AFDC-adult, and AFDC-child. The AFDC-child group was found to be the largest group by number of recipients (46.7%), but they accounted for the smallest proportion (11.4%) of drug expenditures (Figure II.16 and Tables 6 and 7). AFDC-adults also accounted for a larger percent of recipients than expenditures. In contrast, the aged and those who are disabled/blind consumed a disproportionate share of the expenditures when compared with their share among recipients. The disabled and blind were only one-fifth of the recipients while consuming nearly one-half (46.2%) of drug expenditures.

The elderly Medicaid recipients represented 13.8% of the recipients and 30.1% of the drug expenditures. Similarly, the elderly represent about 12% of the overall United States population and account for over 34% of the outpatient drug expenditures (Joseph Thomas III and Stephen W. Schondelmeyer, *Report to Congress, Manufacturers' Price and Pharmacists' Charges for Prescription Drugs Used by the Elderly*, Health Care Financing Administration, Washington, DC, June 1990).

The number of recipients in the AFDC-adult and AFDC-child groups has been growing especially with the OBRA '90 mandated expansions as previously discussed. Despite the growth in number of the AFDC population, provision of drug therapy for these groups is relatively inexpensive compared to the cost of drug therapy for aged and disabled/blind recipients.

II.C.2. Expenditures per Recipient

Not surprisingly the elderly and the disabled have a much higher annual drug expenditure rate per recipient than do the AFDC-adult or AFDC-child groups. In 1992 the average Medicaid elderly had drug expenditures of $721 as compared with only $205 for an AFDC-adult and $80 for an AFDC-child. (Figure II.17 and Table II.8). Drug expenditures per recipient increased steadily between 1988 and 1992 in all categories. For most recipient groups the expenditure rate has nearly doubled in the last five years (Table II.8). The aged had expenditures of $380 per person in 1988, which increased to $720 by 1992. Expenditures for AFDC children were $41 per year in 1988 and reached $80 by 1992. AFDC adults saw their expenditure level grow from $95 in 1988 to $205 in 1992.

Recipients can also be classified by their medical assistance status. The three major categories are categorically needy who receive cash benefits, categorically needy who do not receive cash benefits, and the medically needy. The annual drug expenditures per recipient among these subgroups differs with the categorically needy non-cash recipients spending the most at $357, the categorically needy cash recipients at $323, and the medically needy at $297 in 1992 (Figure 18).

II.D. Drug Expenditure Trends for Specific States

Medicaid programs vary considerably by state with respect to eligibility criteria, provider payments, utilization and expenditure levels and many other factors. The OBRA '90 drug rebate program also had a differential effect on states. These different impacts will be briefly reviewed across states with respect to expenditures, number of recipients, utilization rates, and prescription payment levels. This review of trends will focus on change between 1990 and 1992, before and after the OBRA '90 legislation was implemented.

II.D.1. Expenditures

Between 1990 and 1992 every state had its drug expenditures increase with the lowest change occurring in New York (10.1%) and Wyoming (19.1%). Four states (Missouri, 60.8%; Kentucky, 59.3%; West Virginia, 59.6%; and Delaware, 50.6%) had more than a 50% increase in drug expenditures over this two year period (Table II.9). Even after adjusting these increases for inflation (using 1990 constant $) and after subtracting the value of rebates collected, all but four states had a real increase in drug spending (Figure II.19). The national average increase in rebate and inflation adjusted drug expenditures between 1990 and 1992 was 19.4%.

II.D.2. Recipients

One of the major sources of drug expenditure growth between 1990 and 1992 was the expansion of the number of persons eligible for Medicaid. Examination of the increases in drug recipients by state for this time period reveals that most states had increases ranging from 15% to 37% (Figure II.20). The national average change in drug recipients was an increase of about 20%.

II.D.3. Drug Expenditures per Recipient

The average drug expenditure per drug recipient in 1990 was $256 and grew to $308 by 1992, a 17% increase. After accounting for the rebates collected in 1992, the average drug expenditure per recipient dropped 13% from $308 to $267. Annual drug expenditures per recipient ranged from a low of $212 in Wyoming to a high of $486 in Indiana (Figure II.21 and Table II.10). A simplistic evaluation of the net effect of the drug rebate program on expenditures was performed. First, by examining expenditures per recipient the effect of the increased Medicaid enrollment is neutralized. The amount of rebates collected in 1992 was subtracted from the 1992 expenditure per recipient. Next, the 1992

expenditure minus rebates was converted to 1990 constant dollars so that it could be compared directly with the 1990 expenditure per recipient (Table II.10 and Figure II.22).

The national aggregate change in drug expenditures per recipient after adjusting for rebates and inflation was a 2.9% decrease. Twenty-nine of the fifty states experienced a decrease in expenditures per recipient between 1990 and 1992. Even for the states with an increase, all but four had increases of 10% or less. Four states had extraordinary increases in expenditures per recipient: West Virginia, 33.5%: Kentucky, 33.3%; Missouri, 29.2%: and Massachusetts, 18.4%. Although there may be many factors contributing to these increases, at least three of these states had operated fairly restrictive formularies with prior approval processes before 1991. Since OBRA '90 required open access to drug products, these states ended their restrictive formularies when the legislation was implemented on January 1, 1991. At the same time, Missouri greatly reduced the number of drug products included in its prior authorization program and other pharmacy benefit management procedures such as the limit of five prescriptions per recipient per month.

II.D.4. Prescription Payments

The average Medicaid prescription payment in 1992 was $21.36 with state averages ranging from a low of $15.83 in Illinois to a high of $28.26 in Alaska. More than 40 of the states had average prescription payments between $18 and $25 (Figure II.23). The net cost of a prescription to Medicaid can be computed by subtracting the rebate amount from the average prescription payment. The rebates collected in 1992 represented about $2.83 per prescription, reducing the average prescription to $18.53. If the 1992 prescription price net of rebates is converted to 1990 constant dollars and compared with the 1990 prescription payment, the national aggregate effect was a decline of 2.7% in payment per prescription. Two-thirds of the states experienced a decrease in the net prescription payment between 1990 and 1992 (Figure II.24).

TABLE II.1a Trends in Medicaid Drug Expenditures & Recipients: 1975 to 1993

Current Year $

Year	Total Medical Payments*	Total Drug Payments*	Drug Exp. as % of Total Medical Expend.	Total Recipients*	Drug Recipients*	Drug Recipients as % of Total Recipients	Total Medical Expend. per Total Recipient
1975	$12,242,000,000	$815,000,000	6.7%	22,007,000	14,155,000	64.3%	$556.28
1976	$14,091,000,000	$940,000,000	6.7%	22,815,000	14,883,000	65.2%	$617.62
1977	$16,239,000,000	$1,018,000,000	6.3%	22,832,000	15,370,000	67.3%	$711.24
1978	$17,992,000,000	$1,082,000,000	6.0%	21,965,000	15,188,000	69.1%	$819.12
1979	$20,472,000,000	$1,196,000,000	5.8%	21,520,000	14,283,000	66.4%	$951.30
1980	$23,311,000,000	$1,318,000,000	5.7%	21,605,000	13,707,000	63.4%	$1,078.96
1981	$27,204,000,000	$1,535,000,000	5.6%	21,980,000	14,256,000	64.9%	$1,237.67
1982	$29,399,000,000	$1,599,000,000	5.4%	21,603,000	13,547,000	62.7%	$1,360.88
1983	$32,391,000,000	$1,771,000,000	5.5%	21,544,000	13,732,000	63.7%	$1,503.48
1984	$33,891,000,000	$1,968,000,000	5.8%	21,607,000	13,935,000	64.5%	$1,568.52
1985	$37,508,000,000	$2,315,000,000	6.2%	21,814,000	13,921,000	63.8%	$1,719.45
1986	$41,005,000,000	$2,692,000,000	6.6%	22,515,000	14,704,000	65.3%	$1,821.23
1987	$45,050,000,000	$2,988,000,000	6.6%	23,109,000	15,083,000	65.3%	$1,949.46
1988	$48,710,000,000	$3,294,000,000	6.8%	22,907,000	15,323,000	66.9%	$2,126.42
1989	$54,500,000,000	$3,689,000,000	6.8%	23,511,000	15,916,000	67.7%	$2,318.06
1990	$64,859,000,000	$4,420,000,000	6.8%	25,255,000	17,294,000	68.5%	$2,568.16
1991	$76,964,000,000	$5,424,000,000	7.0%	27,967,000	19,581,000	70.0%	$2,751.96
1992	$91,316,726,920	$6,789,576,805	7.4%	30,251,378	22,062,844	72.9%	$3,018.60
1993	$101,546,607,318	$7,969,202,980	7.8%	32,668,833	23,895,611	73.1%	$3,108.36

Annual Percent Change

Year	Total Medical Payments	Total Drug Payments	Drug Exp. as % of Total Medical Expend.	Total Recipients	Drug Recipients	Drug Recipients as % of Total Recipients	Total Medical Expend. per Total Recipient
1975							
1976	15.1%	15.3%	0.2%	3.7%	5.1%	1.4%	11.0%
1977	15.2%	8.3%	-6.0%	0.1%	3.3%	3.2%	15.2%
1978	10.8%	6.3%	-4.1%	-3.8%	-1.2%	2.7%	15.2%
1979	13.8%	10.5%	-2.9%	-2.0%	-6.0%	-4.0%	16.1%
1980	13.9%	10.2%	-3.2%	0.4%	-4.0%	-4.4%	13.4%
1981	16.7%	16.5%	-0.2%	1.7%	4.0%	2.2%	14.7%
1982	8.1%	4.2%	-3.6%	-1.7%	-5.0%	-3.3%	10.0%
1983	10.2%	10.8%	0.5%	-0.3%	1.4%	1.6%	10.5%
1984	4.6%	11.1%	6.2%	0.3%	1.5%	1.2%	4.3%
1985	10.7%	17.6%	6.5%	1.0%	-0.1%	-1.0%	9.6%
1986	9.3%	16.3%	6.4%	3.2%	5.6%	2.3%	5.9%
1987	9.9%	11.0%	1.0%	2.6%	2.6%	-0.1%	7.0%
1988	8.1%	10.2%	2.0%	-0.9%	1.6%	2.5%	9.1%
1989	11.9%	12.0%	0.1%	2.6%	3.9%	1.2%	9.0%
1990	19.0%	19.8%	0.7%	7.4%	8.7%	1.2%	10.8%
1991	18.7%	22.7%	3.4%	10.7%	13.2%	2.2%	7.2%
1992	18.6%	25.2%	5.5%	8.2%	12.7%	4.2%	9.7%
1993	11.2%	17.4%	5.5%	8.0%	8.3%	0.3%	3.0%

* Raw data from sources cited. Other information is derived from these variables.

SOURCE: Compiled by PRIME Institute, University of Minnesota from HCFA 2082 data found in Pharmaceutical Benefits Under State Medical Assistance, (Reston, VA: National Pharmaceutical Council, annual volumes), Medicaid Source Book (U.S., GPO, 1993), and P. Pine, et. al. Health Care Financing Review, 1992 Annual Supplement, pp.235-269.

TABLE II.1b Trends in Medicaid Drug Expenditures & Recipients: 1975 to 1993

Constant $ (1993)

Year	Total Medical Payments	Total Drug Payments	Drug Exp. as % of Total Medical Expend.	Total Recipients	Drug Recipients	Drug Recipients as % of Total Recipients	Total Medical Expend. per Total Recipient
1975	$32,794,103,428	$2,183,237,567	6.7%	22,007,000	14,155,000	64.3%	$1,490.17
1976	$35,676,116,505	$2,379,926,869	6.7%	22,815,000	14,883,000	65.2%	$1,563.71
1977	$38,587,259,398	$2,418,980,853	6.3%	22,832,000	15,370,000	67.3%	$1,690.05
1978	$39,719,356,593	$2,388,636,274	6.0%	21,965,000	15,188,000	69.1%	$1,808.30
1979	$40,710,211,287	$2,378,341,769	5.8%	21,520,000	14,283,000	66.4%	$1,891.74
1980	$40,813,249,995	$2,307,574,257	5.7%	21,605,000	13,707,000	63.4%	$1,889.07
1981	$43,042,660,086	$2,428,704,721	5.6%	21,980,000	14,256,000	64.9%	$1,958.26
1982	$43,846,699,209	$2,384,804,654	5.4%	21,603,000	13,547,000	62.7%	$2,029.66
1983	$46,815,459,049	$2,559,667,129	5.5%	21,544,000	13,732,000	63.7%	$2,173.02
1984	$46,932,292,451	$2,725,288,470	5.8%	21,607,000	13,935,000	64.5%	$2,172.09
1985	$50,157,499,865	$3,095,729,236	6.2%	21,814,000	13,921,000	63.8%	$2,299.33
1986	$53,947,533,188	$3,541,684,169	6.6%	22,515,000	14,704,000	65.3%	$2,396.07
1987	$57,127,006,142	$3,789,023,182	6.6%	23,109,000	15,083,000	65.3%	$2,472.07
1988	$59,381,681,287	$4,015,669,435	6.8%	22,907,000	15,323,000	66.9%	$2,592.29
1989	$63,377,343,877	$4,289,890,304	6.8%	23,511,000	15,916,000	67.7%	$2,695.65
1990	$71,591,756,039	$4,878,822,703	6.8%	25,255,000	17,294,000	68.5%	$2,834.76
1991	$81,404,364,069	$5,736,932,471	7.0%	27,957,000	19,581,000	70.0%	$2,910.73
1992	$93,821,822,208	$6,975,835,527	7.4%	30,251,378	22,062,844	72.9%	$3,101.41
1993	$101,546,607,318	$7,969,202,980	7.8%	32,668,833	23,895,611	73.1%	$3,108.36

Annual Percent Change

Year	Total Medical Payments	Total Drug Payments	Drug Exp. as % of Total Medical Expend.	Total Recipients	Drug Recipients	Drug Recipients as % of Total Recipients	Total Medical Expend. per Total Recipient
1975							
1976	8.8%	9.0%	0.2%	3.7%	5.1%	1.4%	4.9%
1977	8.2%	1.6%	-6.0%	0.1%	3.3%	3.2%	8.1%
1978	2.9%	-1.3%	-4.1%	-3.8%	-1.2%	2.7%	7.0%
1979	2.5%	-0.4%	-2.9%	-2.0%	-6.0%	-4.0%	4.6%
1980	0.3%	-3.0%	-3.2%	0.4%	-4.0%	-4.4%	-0.1%
1981	5.5%	5.2%	-0.2%	1.7%	4.0%	2.2%	3.7%
1982	1.9%	-1.8%	-3.6%	-1.7%	-5.0%	-3.3%	3.6%
1983	6.8%	7.3%	0.5%	-0.3%	1.4%	1.6%	7.1%
1984	0.2%	6.5%	6.2%	0.3%	1.5%	1.2%	0.0%
1985	6.9%	13.6%	5.3%	1.0%	-0.1%	-1.0%	5.9%
1986	7.6%	14.4%	6.4%	3.2%	5.6%	2.3%	4.2%
1987	5.9%	7.0%	1.0%	2.6%	2.6%	-0.1%	3.2%
1988	3.9%	6.0%	2.0%	-0.9%	1.6%	2.5%	4.9%
1989	6.7%	6.8%	0.1%	2.6%	3.9%	1.2%	4.0%
1990	13.0%	13.7%	0.7%	7.4%	8.7%	1.2%	5.2%
1991	13.7%	17.6%	3.4%	10.7%	13.2%	2.2%	2.7%
1992	15.3%	21.6%	5.5%	8.2%	12.7%	4.2%	6.6%
1993	8.2%	14.2%	5.5%	8.0%	8.3%	0.3%	0.2%

* Raw data from sources cited. Other information is derived from these variables.
SOURCE: Compiled by PRIME Institute, University of Minnesota from HCFA 2082 data found in Pharmaceutical Benefits Under State
Medical Assistance, (Reston, VA): National Pharmaceutical Council, annual volumes), Medicaid Source Book (U.S., GPO, 1993), and
P. Pine, et. al., Health Care Financing Review, 1992 Annual Supplement, pp.235-269.

Current Year $

Year	# of Rx's Dispensed (est.)	Drug Expend. per Total Recipient	Drug Expend. per Drug Recipient	# of Rx's per Total Recipient	# of Rx's per Drug Recipient	Avg. Rx Payment (wt. avg.)*	Drug Product Payment per Rx
1975	175,660,952	$37.03	$57.58	7.98	12.41	$4.64	$2.46
1976	185,090,840	$41.20	$63.16	8.11	12.44	$5.08	$2.83
1977	186,147,204	$44.59	$66.23	8.15	12.11	$5.47	$2.94
1978	183,925,820	$49.26	$71.24	8.37	12.11	$5.88	$3.32
1979	185,996,700	$55.58	$83.74	8.64	13.02	$6.43	$3.77
1980	187,197,348	$61.00	$96.16	8.66	13.66	$7.04	$4.17
1981	194,542,046	$69.84	$107.67	8.85	13.65	$7.89	$5.01
1982	179,486,857	$74.02	$118.03	8.31	13.25	$8.91	$5.92
1983	178,403,792	$82.20	$128.97	8.28	12.99	$9.93	$6.90
1984	180,238,235	$91.08	$141.23	8.34	12.93	$10.92	$7.90
1985	192,796,027	$106.12	$166.30	8.84	13.85	$12.07	$8.71
1986	205,541,334	$119.56	$183.08	9.13	13.98	$13.10	$9.69
1987	214,944,640	$129.30	$198.10	9.30	14.25	$13.90	$10.46
1988	222,750,665	$143.80	$214.97	9.72	14.54	$14.79	$11.27
1989	224,844,340	$156.91	$231.78	9.56	14.13	$16.41	$12.82
1990	249,509,686	$175.01	$255.58	9.88	14.43	$17.71	$13.91
1991	281,368,054	$193.94	$277.00	10.06	14.37	$19.28	$15.28
1992	317,822,574	$224.44	$307.74	10.51	14.41	$21.36	$17.26
1993	348,806,969	$243.94	$333.50	10.68	14.60	$22.85	$18.74

Annual Percent Change

Year	# of Rx's Dispensed (est.)	Drug Expend. per Total Recipient	Drug Expend. per Drug Recipient	# of Rx's per Total Recipient	# of Rx's per Drug Recipient	Avg. Rx Payment (wt. avg.)	Drug Product Payment per Rx
1975							
1976	5.4%	11.3%	9.7%	1.6%	0.2%	9.5%	15.2%
1977	0.6%	8.2%	4.9%	0.5%	-2.6%	7.7%	3.6%
1978	-1.2%	10.5%	7.6%	2.7%	0.0%	7.6%	13.0%
1979	1.1%	12.8%	17.5%	3.2%	7.5%	9.3%	13.7%
1980	0.6%	9.8%	14.8%	0.2%	4.9%	9.5%	10.7%
1981	3.9%	14.5%	12.0%	2.2%	-0.1%	12.1%	20.0%
1982	-7.7%	6.0%	9.6%	-6.1%	-2.9%	12.9%	18.2%
1983	-0.6%	11.1%	9.3%	-0.3%	-1.9%	11.4%	16.6%
1984	1.0%	10.8%	9.5%	0.7%	-0.4%	10.0%	14.5%
1985	7.0%	16.5%	17.8%	6.0%	7.1%	10.0%	10.2%
1986	6.6%	12.7%	10.1%	3.3%	0.9%	9.1%	11.2%
1987	4.6%	8.1%	8.2%	1.9%	1.9%	6.1%	8.0%
1988	3.6%	11.2%	8.5%	4.5%	2.0%	6.4%	7.7%
1989	0.9%	9.1%	7.8%	-1.7%	-2.8%	10.9%	13.8%
1990	11.0%	11.5%	10.3%	3.3%	2.1%	8.0%	8.5%
1991	12.8%	10.8%	8.4%	1.8%	-0.4%	8.8%	9.8%
1992	13.0%	15.7%	11.1%	4.4%	0.2%	10.8%	13.0%
1993	9.7%	8.7%	8.4%	1.6%	1.3%	6.9%	8.6%

* Raw data from sources cited. Other information is derived from these variables.

SOURCE: Compiled by PRIME Institute, University of Minnesota from HCFA 2082 data found in Pharmaceutical Benefits Under State Medical Assistance, (Reston, VA: National Pharmaceutical Council, annual volumes), Medicaid Source Book (U.S., GPO, 1993), and P. Pine, et. al., Health Care Financing Review, 1992 Annual Supplement, pp.235-269.

TABLE II.2b Trends in Medicaid Drug Use Intensity and Efficiency: 1975 to 1993

Constant $ (1993)

Year	# of Rx's Dispensed (est.)	Drug Expend. per Total Recipient	Drug Expend. per Drug Recipient	# of Rx's per Total Recipient	# of Rx's per Drug Recipient	Avg. Rx Payment (wt. avg.)	Drug Product Payment per Rx
1975	175,660,952	$99.21	$154.24	7.98	12.41	$12.43	$6.59
1976	185,090,840	$104.31	$159.91	8.11	12.44	$12.86	$7.17
1977	186,147,204	$105.95	$157.38	8.15	12.11	$12.99	$6.98
1978	183,925,820	$108.75	$157.27	8.37	12.11	$12.99	$7.32
1979	185,996,700	$110.52	$166.52	8.64	13.02	$12.79	$7.50
1980	187,197,348	$106.81	$168.35	8.66	13.66	$12.33	$7.31
1981	194,542,046	$110.50	$170.36	8.85	13.65	$12.48	$7.92
1982	179,486,857	$110.39	$176.04	8.31	13.25	$13.29	$8.83
1983	178,403,792	$118.81	$186.40	8.28	12.99	$14.35	$9.97
1984	180,238,235	$126.13	$195.57	8.34	12.93	$15.12	$10.94
1985	192,796,027	$141.91	$222.38	8.84	13.85	$16.06	$11.65
1986	205,541,334	$157.30	$240.87	9.13	13.98	$17.23	$12.74
1987	214,944,640	$163.96	$251.21	9.30	14.25	$17.63	$13.27
1988	222,750,665	$175.30	$262.07	9.72	14.54	$18.03	$13.74
1989	224,844,340	$182.46	$269.53	9.56	14.13	$19.08	$14.91
1990	249,509,686	$193.18	$282.11	9.88	14.43	$19.55	$15.35
1991	281,368,054	$205.13	$292.98	10.06	14.37	$20.39	$16.16
1992	317,822,574	$230.60	$316.18	10.51	14.41	$21.95	$17.73
1993	348,806,969	$243.94	$333.50	10.68	14.60	$22.85	$18.74

Annual Percent Change

Year	# of Rx's Dispensed (est.)	Drug Expend. per Total Recipient	Drug Expend. per Drug Recipient	# of Rx's per Total Recipient	# of Rx's per Drug Recipient	Avg. Rx Payment (wt. avg.)	Drug Product Payment per Rx
1975							
1976	5.4%	5.1%	3.7%	1.6%	0.2%	3.5%	8.9%
1977	0.6%	1.6%	-1.6%	0.5%	-2.6%	1.1%	-2.7%
1978	-1.2%	2.6%	-0.1%	2.7%	0.0%	-0.1%	5.0%
1979	1.1%	1.6%	5.9%	3.2%	7.5%	-1.5%	2.4%
1980	0.6%	-3.4%	1.1%	0.2%	4.9%	-3.6%	-2.6%
1981	3.9%	3.5%	1.2%	2.2%	-0.1%	1.3%	8.4%
1982	-7.7%	-0.1%	3.3%	-6.1%	-2.9%	6.4%	11.4%
1983	-0.6%	7.6%	5.9%	-0.3%	-1.9%	8.0%	13.0%
1984	1.0%	6.2%	4.9%	0.7%	-0.4%	5.4%	9.7%
1985	7.0%	12.5%	13.7%	6.0%	7.1%	6.2%	6.4%
1986	6.6%	10.8%	8.3%	3.3%	0.9%	7.3%	9.4%
1987	4.6%	4.2%	4.3%	1.9%	1.9%	2.3%	4.1%
1988	3.6%	6.9%	4.3%	4.5%	2.0%	2.3%	3.5%
1989	0.9%	4.1%	2.8%	-1.7%	2.8%	5.8%	8.5%
1990	11.0%	5.9%	4.7%	3.3%	2.1%	2.5%	3.0%
1991	12.8%	6.2%	3.9%	1.8%	-0.4%	4.3%	5.3%
1992	13.0%	12.4%	7.9%	4.4%	0.2%	7.6%	9.8%
1993	9.7%	5.8%	5.5%	1.6%	1.3%	4.1%	5.7%

* Raw data from sources cited. Other information is derived from these variables.

SOURCE: Compiled by PRIME Institute, University of Minnesota from HCFA 2082 data found in Pharmaceutical Benefits Under State
Medical Assistance, (Reston, VA: National Pharmaceutical Council, annual volumes), Medicaid Source Book (U.S., GPO, 1993), and
P. Pine, et. al., Health Care Financing Review, 1992 Annual Supplement, pp.235-269.

TABLE II.3a Trends in Medicaid Drug Expenditures & Rebates: 1975 to 1993

Current Year $

Year	Medicaid Rebate Payments Collected (Total $)*	Total Drug Expend. After Rebates	Rebate Amount per Rx ($/Rx)	Avg. Rx Payment After Rebates	Drug Product Payment per Rx After Rebates	Drug Prod Payment as % of Rx $ After Rebates	Drug Expend. per Drug Recip. After Rebates
1975	$0	$815,000,000	$0.00	$4.64	$2.46	53.0%	$57.58
1976	$0	$940,000,000	$0.00	$5.08	$2.83	55.8%	$63.16
1977	$0	$1,018,000,000	$0.00	$5.47	$2.94	53.7%	$66.23
1978	$0	$1,082,000,000	$0.00	$5.88	$3.32	56.4%	$71.24
1979	$0	$1,196,000,000	$0.00	$6.43	$3.77	58.6%	$83.74
1980	$0	$1,318,000,000	$0.00	$7.04	$4.17	59.3%	$96.16
1981	$0	$1,535,000,000	$0.00	$7.89	$5.01	63.5%	$107.67
1982	$0	$1,599,000,000	$0.00	$8.91	$5.92	66.4%	$118.03
1983	$0	$1,771,000,000	$0.00	$9.93	$6.90	69.5%	$128.97
1984	$0	$1,968,000,000	$0.00	$10.92	$7.90	72.4%	$141.23
1985	$0	$2,315,000,000	$0.00	$12.01	$8.71	72.5%	$166.30
1986	$0	$2,692,000,000	$0.00	$13.10	$9.69	74.0%	$183.08
1987	$0	$2,988,000,000	$0.00	$13.90	$10.46	75.3%	$198.10
1988	$0	$3,294,000,000	$0.00	$14.79	$11.27	76.2%	$214.97
1989	$0	$3,689,000,000	$0.00	$16.41	$12.82	78.1%	$231.78
1990	$0	$4,420,000,000	$0.00	$17.71	$13.91	78.5%	$255.58
1991	$110,943,811	$5,313,056,189	$0.39	$18.88	$14.88	78.8%	$271.34
1992	$900,252,297	$5,889,324,508	$2.83	$18.53	$14.43	77.9%	$266.93
1993	$1,413,070,407	$6,556,132,573	$4.05	$18.80	$14.69	78.1%	$274.37

Annual Percent Change

Year	Medicaid Rebate Payments (Total $)	Total Drug Expend. After Rebates	Rebate Amount per Rx ($/Rx)	Avg. Rx Payment After Rebates	Drug Product Payment per Rx After Rebates	Drug Prod Payment as % of Rx $ After Rebates	Drug Expend. per Drug Recip. After Rebates
1975							
1976		15.3%		9.5%	15.2%	5.3%	9.7%
1977		8.3%		7.7%	3.6%	-3.7%	4.9%
1978		6.3%		7.6%	13.0%	5.0%	7.6%
1979		10.5%		9.3%	13.7%	4.0%	17.5%
1980		10.2%		9.5%	10.7%	1.1%	14.8%
1981		16.5%		12.1%	20.0%	7.0%	12.0%
1982		4.2%		12.9%	18.2%	4.7%	9.6%
1983		10.8%		11.4%	16.6%	4.6%	9.3%
1984		11.1%		10.0%	14.5%	4.1%	9.5%
1985		17.6%		10.0%	10.2%	0.2%	17.8%
1986		16.3%		9.1%	11.2%	2.0%	10.1%
1987		11.0%		6.1%	8.0%	1.8%	8.2%
1988		10.2%		6.4%	7.7%	1.2%	8.5%
1989		12.0%		10.9%	13.8%	2.5%	7.8%
1990		19.8%		8.0%	8.5%	0.5%	10.3%
1991		20.2%		6.6%	7.0%	0.4%	6.2%
1992	711.4%	10.8%	618.4%	-1.9%	-3.1%	-1.2%	-1.6%
1993	57.0%	11.3%	43.0%	1.4%	1.8%	0.4%	2.8%

* Raw data from sources cited. Other information is derived from these variables.

SOURCE: Compiled by PRIME Institute, University of Minnesota from HCFA 2082 data found in Pharmaceutical Benefits Under State
Medical Assistance, (Reston, VA: National Pharmaceutical Council, annual volumes), Medicaid Source Book (U.S., GPO, 1993), and
P. Pine, et. al., Health Care Financing Review, 1992 Annual Supplement, pp.235-269.

TABLE II.3b Trends in Medicaid Drug Expenditures & Rebates: 1975 to 1993

Constant $ (1993)

Year	Medicaid Rebate Payments (Total $)	Total Drug Expend. After Rebates	Rebate Amount per Rx ($/Rx)	Avg. Rx Payment After Rebates	Drug Product Payment per Rx After Rebates	Drug Prod Payment as % of Rx $ After Rebates	Drug Expend. per Drug Recip. After Rebates
1975	$0	$2,183,237,567	$0.00	$12.43	$6.59	53.0%	$154.24
1976	$0	$2,379,926,869	$0.00	$12.86	$7.17	55.8%	$159.91
1977	$0	$2,418,980,853	$0.00	$12.99	$6.98	53.7%	$157.38
1978	$0	$2,388,636,274	$0.00	$12.99	$7.32	56.4%	$157.27
1979	$0	$2,378,341,769	$0.00	$12.79	$7.50	58.6%	$166.52
1980	$0	$2,307,574,257	$0.00	$12.33	$7.31	59.3%	$168.35
1981	$0	$2,428,704,721	$0.00	$12.48	$7.92	63.5%	$170.36
1982	$0	$2,384,804,654	$0.00	$13.29	$8.83	66.4%	$176.04
1983	$0	$2,559,667,129	$0.00	$14.35	$9.97	69.5%	$186.40
1984	$0	$2,725,288,470	$0.00	$15.12	$10.94	72.4%	$195.57
1985	$0	$3,095,729,236	$0.00	$16.06	$11.65	72.5%	$222.38
1986	$0	$3,541,684,169	$0.00	$17.23	$12.74	74.0%	$240.87
1987	$0	$3,789,023,182	$0.00	$17.63	$13.27	75.3%	$251.21
1988	$0	$4,015,669,435	$0.00	$18.03	$13.74	76.2%	$262.07
1989	$0	$4,289,890,304	$0.00	$19.08	$14.91	78.1%	$269.53
1990	$0	$4,878,822,703	$0.00	$19.55	$15.35	78.5%	$282.11
1991	$117,344,608	$5,619,587,864	$0.42	$19.97	$15.74	78.8%	$286.99
1992	$924,948,953	$6,050,886,574	$2.91	$19.04	$14.82	77.9%	$274.26
1993	$1,413,070,407	$6,556,132,573	$4.05	$18.80	$14.69	78.1%	$274.37

Annual Percent Change

Year	Medicaid Rebate Payments (Total $)	Total Drug Expend. After Rebates	Rebate Amount per Rx ($/Rx)	Avg. Rx Payment After Rebates	Drug Product Payment per Rx After Rebates	Drug Prod Payment as % of Rx $ After Rebates	Drug Expend. per Drug Recip. After Rebates
1975							
1976		9.0%		3.5%	8.9%	5.3%	3.7%
1977		1.6%		1.1%	-2.7%	-3.7%	-1.6%
1978		-1.3%		-0.1%	5.0%	5.0%	-0.1%
1979		-0.4%		-1.5%	2.4%	4.0%	5.9%
1980		-3.0%		-3.6%	-2.6%	1.1%	1.1%
1981		5.2%		1.3%	8.4%	7.0%	1.2%
1982		-1.8%		6.4%	11.4%	4.7%	3.3%
1983		7.3%		8.0%	13.0%	4.6%	5.9%
1984		6.5%		5.4%	9.7%	4.1%	4.9%
1985		13.6%		6.2%	6.4%	0.2%	13.7%
1986		14.4%		7.3%	9.4%	2.0%	8.3%
1987		7.0%		2.3%	4.1%	1.8%	4.3%
1988		6.0%		2.3%	3.5%	1.2%	4.3%
1989		6.8%		5.8%	8.5%	2.5%	2.8%
1990		13.7%		2.5%	3.0%	0.5%	4.7%
1991		15.2%		2.1%	2.5%	0.4%	1.7%
1992	688.2%	7.7%	597.8%	-4.7%	-5.8%	-1.2%	-4.4%
1993	52.8%	8.3%	39.2%	-1.3%	-0.9%	0.4%	0.0%

* Raw data from sources cited. Other information is derived from these variables.

SOURCE: Compiled by PRIME Institute, University of Minnesota from HCFA 2082 data found in Pharmaceutical Benefits Under State
Medical Assistance, (Reston, VA: National Pharmaceutical Council, annual volumes), Medicaid Source Book (U.S., GPO, 1993), and
P. Pine, et. al., Health Care Financing Review. 1992 Annual Supplement, pp.235-269.

Table II.4 Medicaid Rebates Accrued and Collected: 1991 to 1993

FY-Qtr	CY-Qtr	# of States Reporting	Rebate Accrued (1)	Rebate Collected (2)	Cumulative Rebate Accrued	Cumulative Rebate Collected	Cumulative Rebate Uncollected
91 Q2	91 Q1		$99,618,948	$4,323,329	$99,618,948	$4,323,329	$95,295,619
91 Q3	91 Q2		$151,312,486	$6,763,614	$250,931,434	$11,086,943	$239,844,491
91 Q4	91 Q3	39	$191,328,922	$99,856,868	$442,260,356	$110,943,811	$331,316,545
92 Q1	91 Q4	42	$170,092,916	$140,087,874	$612,353,272	$251,031,685	$361,321,587
92 Q2	92 Q1	50	$242,742,879	$204,114,349	$855,096,151	$455,146,034	$399,950,117
92 Q3	92 Q2	50	$202,402,012	$261,584,604	$1,057,498,163	$716,730,638	$340,767,525
92 Q4	92 Q3	50	$203,998,082	$294,465,470	$1,261,496,246	$1,011,196,108	$250,300,138
93 Q1	92 Q4	50	$274,000,000	$343,306,924	$1,535,496,246	$1,354,503,032	$180,993,214
93 Q2	93 Q1	50	$280,000,000	$292,145,269	$1,815,496,246	$1,646,648,301	$168,847,945
93 Q3	93 Q2	50	$258,000,000	$429,890,937	$2,073,496,246	$2,076,539,238	($3,042,992)
93 Q4	93 Q3	50	$255,000,000	$347,727,277	$2,328,496,246	$2,424,266,515	($95,770,269)
94 Q1	93 Q4	49	$257,000,000	$410,656,647	$2,585,496,246	$2,834,923,162	($249,426,916)
	CY 91		$612,353,272	$251,031,685	$612,353,272	$251,031,685	$1,027,778,242
	CY 92		$923,142,974	$1,103,471,347	$1,535,496,246	$1,354,503,032	$1,172,010,994
	CY 93		$1,050,000,000	$1,480,420,130	$2,585,496,246	$2,834,923,162	($179,392,233)
FY 91			$442,260,356	$110,943,811	$442,260,356	$110,943,811	$666,456,655
FY 92			$819,235,890	$900,252,297	$1,261,496,246	$1,011,196,108	$1,352,339,367
FY 93			$1,067,000,000	$1,413,070,407	$2,328,496,246	$2,424,266,515	$251,027,897

FY-Qtr	CY-Qtr	# of States Reporting	Total Prescribed Drugs Payments (2)	Rebates Accrued as % of Drug Payments	Rebates Collected as % of Drug Payments	Rebates Uncollected as % of Drug Payments	Rebates Collected as % Rebates Accrued
91 Q2	91 Q1		$532,449,877	18.7%	0.8%	17.9%	4.3%
91 Q3	91 Q2		$539,773,049	28.0%	1.3%	44.4%	4.5%
91 Q4	91 Q3	39	$1,316,433,341	14.5%	7.6%	25.2%	52.2%
92 Q1	91 Q4	42	$1,506,553,180	11.3%	9.3%	24.0%	82.4%
92 Q2	92 Q1	50	$1,769,379,913	13.7%	11.5%	22.6%	84.1%
92 Q3	92 Q2	50	$1,807,179,800	11.2%	14.5%	18.9%	129.2%
92 Q4	92 Q3	50	$1,868,567,330	10.9%	15.8%	13.4%	144.3%
93 Q1	92 Q4	50	$1,932,957,927	14.2%	17.8%	9.4%	125.3%
93 Q2	93 Q1	50	$2,081,453,512	13.5%	14.0%	8.1%	104.3%
93 Q3	93 Q2	50	$2,115,901,074	12.2%	20.3%	-0.1%	166.6%
93 Q4	93 Q3	50	$2,188,556,768	11.7%	15.9%	-4.4%	136.4%
94 Q1	93 Q4	49	$2,191,129,198	11.7%	18.7%	-11.4%	159.8%
	CY 91		$3,895,209,447	15.7%	6.4%	26.4%	41.0%
	CY 92		$7,378,084,970	12.5%	15.0%	15.9%	119.5%
	CY 93		$8,577,040,552	12.2%	17.3%	-2.1%	141.0%
FY 91			$2,388,656,267	18.5%	4.6%	27.9%	25.1%
FY 92			$6,951,680,223	11.8%	13.0%	19.5%	109.9%
FY 93			$8,318,869,281	12.8%	17.0%	3.0%	132.4%

SOURCES:

(1) HCFA estimates.

(2) Report to Congress: Medicaid Drug Rebate Program, 1992, 1993, & 1995.

Table II.5 Medicaid Rebates: Distribution by Type in 1991 to 1993

FY-Qtr	CY-Qtr	Total Rebate Amount	Basic Rebate Amount w/o Best Price or Add'l Rebate	Best Price Contribution to Rebate Amount	Additional (Inflation) Rebate Amount	Non-Innovator Drug Rebate Amount
		Rebate Amounts Accrued (1)				
91 Q2	91 Q1	$99,618,948	$51,584,275	$31,462,548	$15,009,946	$1,562,179
91 Q3	91 Q2	$151,312,486	$74,819,663	$44,122,132	$30,031,484	$2,339,207
91 Q4	91 Q3	$191,328,922	$93,450,542	$52,410,452	$42,903,189	$2,564,740
92 Q1	91 Q4	$170,092,916	$82,444,281	$42,611,553	$42,644,563	$2,392,520
92 Q2	92 Q1	$242,742,879	$93,800,204	$88,907,755	$57,335,216	$2,699,704
92 Q3	92 Q2	$202,402,012	$80,203,996	$68,463,028	$51,526,183	$2,208,805
92 Q4	92 Q3	$203,998,082	$78,044,643	$74,405,685	$49,427,497	$2,120,257
93 Q1	92 Q4	$274,000,000	$106,000,000	$80,000,000	$85,000,000	$3,000,000
93 Q2	93 Q1	$280,000,000	$110,000,000	$65,000,000	$102,000,000	$3,000,000
93 Q3	93 Q2	$258,000,000	$104,000,000	$60,000,000	$92,000,000	$2,000,000
93 Q4	93 Q3	$255,000,000	$103,000,000	$63,000,000	$87,000,000	$2,000,000
94 Q1	93 Q4	$257,000,000	$101,000,000	$61,000,000	$92,000,000	$3,000,000
	CY 91	$612,353,272	$302,298,762	$170,606,684	$130,589,181	$8,858,645
	CY 92	$923,142,974	$358,048,843	$311,776,467	$243,288,897	$10,028,766
	CY 93	$1,050,000,000	$418,000,000	$249,000,000	$373,000,000	$10,000,000
FY 91		$442,260,356	$219,854,480	$127,995,131	$87,944,619	$6,466,126
FY 92		$819,235,890	$334,493,125	$274,388,020	$200,933,459	$9,421,285
FY 93		$1,067,000,000	$423,000,000	$268,000,000	$366,000,000	$10,000,000
		Rebate Amount Accrued by Type of Rebate as a % of Total Rebate Amount Accrued				
91 Q2	91 Q1	100.0%	51.8%	31.6%	15.1%	1.6%
91 Q3	91 Q2	100.0%	49.4%	29.2%	19.8%	1.5%
91 Q4	91 Q3	100.0%	48.8%	27.4%	22.4%	1.3%
92 Q1	91 Q4	100.0%	48.5%	25.1%	25.1%	1.4%
92 Q2	92 Q1	100.0%	38.6%	36.6%	23.6%	1.1%
92 Q3	92 Q2	100.0%	39.6%	33.8%	25.5%	1.1%
92 Q4	92 Q3	100.0%	38.3%	36.5%	24.2%	1.0%
93 Q1	92 Q4	100.0%	38.7%	29.2%	31.0%	1.1%
93 Q2	93 Q1	100.0%	39.3%	23.2%	36.4%	1.1%
93 Q3	93 Q2	100.0%	40.3%	23.3%	35.7%	0.8%
93 Q4	93 Q3	100.0%	40.4%	24.7%	34.1%	0.8%
94 Q1	93 Q4	100.0%	39.3%	23.7%	35.8%	1.2%
	CY 91	100.0%	49.4%	27.9%	21.3%	1.4%
	CY 92	100.0%	38.8%	33.8%	26.4%	1.1%
	CY 93	100.0%	39.8%	23.7%	35.5%	1.0%
FY 91		100.0%	49.7%	28.9%	19.9%	1.5%
FY 92		100.0%	40.8%	33.5%	24.5%	1.2%
FY 93		100.0%	39.6%	25.1%	34.3%	0.9%

SOURCES:

(1) HCFA estimates.

(2) Report to Congress: Medicaid Drug Rebate Program, 1992, 1993, & 1995.

Table II.6 Annual Medicaid Drug Expenditures by Basis of Eligibility and Medical Assistance Status: 1988 to 1992

	FY 1988 Drug Expenditures	FY 1989 Drug Expenditures	FY 1990 Drug Expenditures	FY 1991 Drug Expenditures	FY 1992 Drug Expenditures
National Total	$3,292,803,233	$3,675,478,751	$4,395,772,639	$5,455,625,424	$6,832,253,818
27 State Total	$2,117,847,371	$2,352,170,668	$2,831,645,963	$3,426,590,455	$4,336,066,203
% of National	64.3%	64.0%	64.4%	62.8%	63.5%
Categorically Needy					
Cash	$1,275,447,562	$1,701,878,424	$2,007,702,344	$2,342,480,213	$2,863,660,132
Non-Cash	$333,197,266	$368,619,113	$392,601,894	$524,014,087	$688,177,838
Medically Needy	$138,485,508	$230,149,756	$274,059,193	$330,010,230	$402,106,779
Other	$370,717,035	$51,523,375	$157,282,532	$230,085,925	$382,121,454
All Need Categories					
Aged	$634,939,428	$779,950,799	$852,271,567	$1,000,024,328	$1,183,171,036
Blind	$18,046,809	$20,950,964	$23,784,501	$27,190,287	$32,453,212
Disabled	$702,096,432	$956,098,588	$1,153,722,282	$1,394,795,750	$1,784,125,642
AFDC-Child	$162,985,133	$222,634,944	$272,091,360	$335,138,624	$448,086,168
AFDC-Adult	$216,229,303	$307,092,416	$357,449,704	$420,860,879	$484,826,142
Subtotal	$1,734,297,105	$2,286,727,711	$2,659,319,414	$3,178,009,868	$3,932,662,200
Other Title XIX*	$12,833,231	$13,919,582	$15,044,017	$18,494,662	$21,282,549
Other Misc.*	$370,717,035	$51,523,375	$157,282,532	$230,085,925	$382,121,454
TOTAL	$2,117,847,371	$2,352,170,668	$2,831,645,963	$3,426,590,455	$4,336,066,203
Percent Distribution by Category*					
All Need Categories					
Aged	36.6%	34.1%	32.0%	31.5%	30.1%
Blind	1.0%	0.9%	0.9%	0.9%	0.8%
Disabled	40.5%	41.8%	43.4%	43.9%	45.4%
AFDC-Child	9.4%	9.7%	10.2%	10.5%	11.4%
AFDC-Adult	12.5%	13.4%	13.4%	13.2%	12.3%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

* Excludes Other Title XIX, and other misc. categories from distribution calculation. Some states used these categories
   to reconcile errors or to make corrections from other periods and this has resulted in negative values being reported.
SOURCE: Compiled by the PRIME Institute, University of Minnesota based on data from HCFA 2082 reports
   for 27 states with complete data by recipient type for the years 1988 to 1992 as found in Pharmaceutical Benefits
   Under State Medical Assistance Programs (Reston, VA: National Pharmaceutical Council, 1988 to 1993).

Table II.7 Number of Medicaid Recipients by Basis of Eligibility and Medical Assistance Status: 1988 to 1992

	FY 1988 Drug Recipients	FY 1989 Drug Recipients	FY 1990 Drug Recipients	FY 1991 Drug Recipients	FY 1992 Drug Recipients
National Total	15,393,277	15,959,032	17,250,998	19,812,416	22,237,801
27 State Total	9,982,825	10,293,164	11,232,430	12,838,835	14,413,029
% of National	64.9%	64.5%	65.1%	64.8%	64.8%
Categorically Needy					
Cash	7,806,378	7,797,496	8,045,080	8,710,998	8,878,771
Non-cash	1,188,255	1,223,906	1,338,012	1,684,345	1,929,393
Medically Needy	1,025,858	1,022,148	1,093,797	1,237,463	1,353,746
Other	-37,666	249,614	755,541	1,206,029	2,251,119
All Need Categories					
Aged	1,672,403	1,619,775	1,540,900	1,600,420	1,641,973
Blind	48,208	46,770	45,939	46,217	48,010
Disabled	1,775,316	1,831,664	1,918,535	2,069,365	2,295,079
AFDC-Child	3,936,427	4,020,256	4,348,718	4,951,82⁻	5,571,484
AFDC-Adult	2,266,947	2,300,297	2,390,239	2,734,726	2,364,242
Subtotal	9,699,301	9,818,762	10,244,331	11,402,553	11,920,788
Other Title XIX*	321,190	224,788	232,558	230,253	241,122
Other Misc.*	-37,666	249,614	755,541	1,206,029	2,251,119
TOTAL	9,982,825	10,293,164	11,232,430	12,838,835	14,413,029

Percent Distribution by Category*

All Need Categories					
Aged	17.2%	16.5%	15.0%	14.0%	13.8%
Blind	0.5%	0.5%	0.4%	0.4%	0.4%
Disabled	18.3%	18.7%	18.7%	18.1%	19.3%
AFDC-Child	40.6%	40.9%	42.4%	43.4%	46.7%
AFDC-Adult	23.4%	23.4%	23.3%	24.0%	19.8%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

* Excludes Other Title XIX, and other misc. categories from distribution calculation. Some states used these categories
    to reconcile errors or to make corrections from other periods and this has resulted in negative values being reported.
SOURCE: Compiled by the PRIME Institute, University of Minnesota based on data from HCFA 2082 reports
    for 27 states with complete data by recipient type for the years 1988 to 1992 as found in Pharmaceutical Benefits
    Under State Medical Assistance Programs (Reston, VA: National Pharmaceutical Council, 1988 to 1993).

Table II. 8 Medicalid Drug Expenditure per Recipient by Basis of Eligbility and Medical Assistance Status: 1988 to 1992

	FY 1988 Drug Expend./ Drug Recipient	FY 1989 Drug Expend./ Drug Recipient	FY 1990 Drug Expend./ Drug Recipient	FY 1991 Drug Expend./ Drug Recipient	FY 1992 Drug Expend./ Drug Recipient
National Total	$213.91	$230.31	$254.81	$275.36	$307.24
27 State Total	$212.15	$228.52	$252.10	$266.89	$300.84
% of National	99.2%	99.2%	98.9%	96.9%	97.9%
Categorically Needy					
Cash	$163.39	$218.26	$249.56	$268.91	$322.53
Non-cash	$280.41	$301.18	$293.42	$311.11	$356.68
Medically Needy	$134.99	$225.16	$250.56	$266.68	$297.03
Other*	($9,842.22)	$206.41	$208.17	$190.78	$169.75
All Need Categories					
Aged	$379.66	$481.52	$553.10	$624.85	$720.58
Blind	$374.35	$447.96	$517.74	$588.32	$675.97
Disabled	$395.48	$521.98	$601.36	$674.02	$777.37
AFDC-Child	$41.40	$55.38	$62.57	$67.68	$80.42
AFDC-Adult	$95.38	$133.50	$149.55	$153.90	$205.07
Other Title XIX	$39.96	$61.92	$64.69	$80.32	$88.26
Other Misc.	($9,842.22)	$206.41	$208.17	$190.78	$169.75
TOTAL	$212.15	$228.52	$252.10	$266.89	$300.84

* Excludes Other Title XIX, and other misc. categories from distribution calculation. Some states used these categories
   to reconcile errors or to make corrections from other periods and this has resulted in negative values being reported.
SOURCE: Compiled by the PRIME institute, University of Minnesota based on data from HCFA 2082 reports
   for 27 states with complete data by recipient type for the years 1988 to 1992 as found in Pharmaceutical Benefits
   Under State Medical Assistance Programs (Reston, VA: National Pharmaceutical Council, 1988 to 1993).

Table II.9. Change in Annual Drug Expenditures:
1990 vs. 1992 After Rebates & Inflation Adjustment

State	FY 1990 Drug Expenditures	FY 1992 Drug Expenditures	FY 1992 Drug Expenditures -Rebates	FY 1992 Drug Expend. -Rebates & Infl. Adj. ('90 Const.$)	% Change in Drug Expenditures		
					FY 1992 vs. FY 1990	FY 1992 - Rebates vs. FY 1990	FY 1992 -Rebates & Infl. Adj. vs. FY 1990
Missouri	$63,744,620	$162,786,021	$139,800,547	$130,127,663	60.8%	54.4%	51.0%
Kentucky	$65,877,419	$161,860,930	$140,695,147	$130,960,365	59.3%	53.2%	49.7%
West Virginia	$26,263,417	$65,040,292	$55,895,570	$52,028,122	59.6%	53.0%	49.5%
Delaware	$6,033,942	$12,214,138	$10,197,090	$9,491,547	50.6%	40.8%	36.4%
Alaska	$5,570,632	$10,949,702	$9,383,609	$8,734,351	49.1%	40.6%	36.2%
Alabama	$60,565,765	$115,718,764	$98,007,126	$91,225,954	47.7%	38.2%	33.6%
Massachusetts	$118,500,895	$195,913,968	$188,449,939	$175,410,975	39.5%	37.1%	32.4%
Nebraska	$25,797,119	$43,460,363	$40,729,744	$37,911,629	40.6%	36.7%	32.0%
Indiana	$113,619,942	$193,964,493	$176,354,655	$164,152,571	41.4%	35.6%	30.8%
New Hampshire	$11,402,040	$19,800,078	$17,003,834	$15,827,329	42.4%	32.9%	28.0%
Tennessee	$114,827,595	$193,886,536	$170,812,713	$158,994,079	40.8%	32.8%	27.8%
Washington	$78,939,614	$127,666,852	$117,147,182	$109,041,698	38.2%	32.6%	27.6%
Nevada	$8,337,492	$14,474,220	$12,365,565	$11,509,984	42.4%	32.6%	27.6%
Texas	$197,385,023	$348,061,498	$291,390,404	$271,228,927	43.3%	32.3%	27.2%
Louisiana	$116,573,526	$202,245,516	$171,911,576	$160,016,911	42.4%	32.2%	27.1%
Idaho	$11,875,621	$19,924,090	$17,331,113	$16,131,963	40.4%	31.5%	26.4%
Connecticut	$52,161,172	$86,186,898	$76,023,672	$70,763,548	39.5%	31.4%	26.3%
Utah	$16,676,953	$29,161,221	$24,063,877	$22,398,883	42.8%	30.7%	25.5%
New Jersey	$151,001,919	$227,028,783	$215,680,177	$200,757,136	33.5%	30.0%	24.8%
New Mexico	$20,757,112	$33,111,772	$29,615,829	$27,566,692	37.3%	29.9%	24.7%
Mississippi	$71,720,795	$115,106,986	$101,771,965	$94,730,302	37.7%	29.5%	24.3%
Oregon	$36,624,426	$60,456,889	$51,766,020	$48,184,298	39.4%	29.3%	24.0%
Oklahoma	$45,346,213	$75,551,978	$63,862,306	$59,443,635	40.0%	29.0%	23.7%
Virginia	$82,620,648	$133,845,169	$116,146,146	$108,109,924	38.3%	28.9%	23.6%
Illinois	$181,731,503	$277,983,724	$252,062,456	$234,622,103	34.6%	27.9%	22.5%
Kansas	$29,712,915	$48,290,913	$41,036,654	$38,197,303	38.5%	27.6%	22.2%
Florida	$222,008,061	$356,872,793	$305,309,480	$284,184,934	37.8%	27.3%	21.9%
California	$538,741,492	$824,931,733	$729,673,666	$679,187,107	34.7%	26.2%	20.7%
National Total	$4,419,603,922	$6,789,576,805	$5,889,324,508	$5,481,838,609	34.9%	25.0%	19.4%
South Dakota	$8,954,775	$14,291,263	$11,853,940	$11,033,759	37.3%	24.5%	18.8%
Pennsylvania	$235,600,160	$363,418,881	$309,333,236	$287,930,284	35.2%	23.8%	18.2%
Hawaii	$16,126,734	$24,720,113	$21,161,024	$19,696,880	34.8%	23.8%	18.1%
Ohio	$207,873,421	$318,661,029	$269,705,805	$251,044,698	34.8%	22.9%	17.2%
D.C.	$14,140,417	$20,765,422	$18,223,222	$16,962,346	31.9%	22.4%	16.6%
North Carolina	$104,338,593	$157,873,273	$132,707,823	$123,525,689	33.9%	21.4%	15.5%
Vermont	$13,597,492	$20,659,367	$17,281,269	$16,085,568	34.2%	21.3%	15.5%
South Carolina	$50,395,038	$77,902,920	$62,699,129	$58,360,939	35.3%	19.6%	13.6%
Colorado	$35,249,937	$53,056,659	$43,439,735	$40,434,114	33.6%	18.9%	12.8%
Maryland	$67,510,977	$96,825,858	$83,058,067	$77,311,229	30.3%	18.7%	12.7%
Iowa	$52,962,760	$77,703,813	$64,559,117	$60,092,233	31.8%	18.0%	11.9%
Wisconsin	$101,997,928	$140,960,447	$123,422,871	$114,883,168	27.6%	17.4%	11.2%
Maine	$30,863,851	$45,429,347	$37,094,912	$34,528,293	32.1%	16.8%	10.6%
Rhode Island	$21,470,169	$30,339,302	$25,607,519	$23,835,719	29.2%	16.2%	9.9%
Georgia	$143,999,735	$191,357,072	$162,690,461	$151,433,810	24.7%	11.5%	4.9%
Montana	$11,596,669	$16,156,909	$13,083,761	$12,178,488	28.2%	11.4%	4.8%
Michigan	$172,638,163	$227,955,769	$194,410,190	$180,958,832	24.3%	11.2%	4.6%
Arkansas	$57,227,472	$73,836,333	$62,629,770	$58,296,379	22.5%	8.5%	1.8%
Minnesota	$73,863,639	$93,385,028	$79,353,871	$73,863,329	20.9%	6.9%	0.0%
North Dakota	$9,936,790	$13,769,049	$10,610,474	$9,876,329	27.8%	6.3%	-0.6%
Wyoming	$4,965,004	$6,137,513	$4,848,460	$4,512,992	19.1%	-2.4%	-10.0%
New York	$509,876,327	$567,054,877	$476,241,549	$443,290,110	10.1%	-7.1%	-15.0%

Source: Compiled by the PRIME Institute, University of Minnesota from data found in Pharmaceutical Benefits Under State Medical Assistance Programs.

(Reston, VA: National Pharm. Council, annual reports, 1990 to 1993) and in Report to Congress: Medicaid Drug Rebate Program, 1992, 1993, & 1995.

Table II.10. Change in Annual Drug Expenditures/Recipient:
1990 vs. 1992 After Rebates & Inflation Adjustment

					% Change in Drug Expenditures/Recipient		
State	FY 1992 Drug Expend./ Recipient	FY 1992 Drug Expend./ Recipient	FY 1992 Drug Expend./ Recipient -Rebates	FY 1992 Drug Exp./ Recip. - Rebates & Infl. Adj. ('90 Const.$)	FY 1992 vs. FY 1990	FY 1992 - Rebates vs. FY 1990	FY 1992 -Rebates & Infl. Adj. vs. FY 1990
West Virginia	$145.80	$274.07	$235.54	$219.24	46.8%	38.1%	33.5%
Kentucky	$190.98	$353.63	$307.39	$286.12	46.0%	37.9%	33.3%
Missouri	$210.69	$372.04	$319.51	$297.40	43.4%	34.1%	29.2%
Massachusetts	$284.48	$389.25	$374.42	$348.51	26.9%	24.0%	18.4%
Louisiana	$264.00	$371.50	$315.78	$293.93	28.9%	16.4%	10.2%
Nebraska	$287.35	$366.68	$343.64	$319.87	21.6%	16.4%	10.2%
New Jersey	$324.22	$405.73	$385.45	$358.78	20.1%	15.9%	9.6%
Mississippi	$217.96	$290.51	$256.85	$239.08	25.0%	15.1%	8.8%
Connecticut	$288.44	$384.11	$338.82	$315.37	24.9%	14.9%	8.5%
Montana	$266.27	$384.40	$311.29	$289.75	30.7%	14.5%	8.1%
Alabama	$239.27	$329.75	$279.28	$259.95	27.4%	14.3%	8.0%
Illinois	$218.01	$277.49	$251.61	$234.20	21.4%	13.4%	6.9%
Washington	$231.98	$290.73	$266.78	$248.32	20.2%	13.0%	6.6%
Tennessee	$248.17	$318.65	$280.73	$261.31	22.1%	11.6%	5.0%
Delaware	$208.47	$281.21	$234.77	$218.53	25.9%	11.2%	4.6%
Kansas	$225.33	$297.95	$253.19	$235.67	24.4%	11.0%	4.4%
D.C.	$254.80	$324.27	$284.57	$264.88	21.4%	10.5%	3.8%
Hawaii	$244.20	$316.24	$270.71	$251.98	22.8%	9.8%	3.1%
Alaska	$257.11	$329.93	$282.74	$263.18	22.1%	9.1%	2.3%
California	$201.32	$247.25	$218.70	$203.57	14.8%	7.9%	1.1%
Wisconsin	$357.67	$442.25	$387.22	$360.43	19.1%	7.6%	0.8%
Pennsylvania	$307.37	$384.04	$326.88	$304.27	20.0%	6.0%	-1.0%
Iowa	$285.66	$362.10	$300.85	$280.03	21.1%	5.0%	-2.0%
Utah	$222.79	$284.28	$234.59	$218.36	21.6%	5.0%	-2.0%
Oregon	$249.12	$305.88	$261.91	$243.79	18.6%	4.9%	-2.2%
National Avg.	$255.66	$307.74	$266.93	$248.46	16.9%	4.2%	-2.9%
Indiana	$425.03	$486.45	$442.29	$411.69	12.6%	3.9%	-3.2%
Ohio	$260.38	$319.46	$270.38	$251.67	18.5%	3.7%	-3.5%
Michigan	$225.92	$274.77	$234.34	$218.12	17.8%	3.6%	-3.6%
Maryland	$286.09	$345.64	$296.50	$275.98	17.2%	3.5%	-3.7%
Minnesota	$276.27	$331.36	$281.57	$262.09	16.6%	1.9%	-5.4%
Virginia	$299.78	$350.48	$304.13	$283.09	14.5%	1.4%	-5.5%
Oklahoma	$241.71	$289.99	$245.12	$228.16	16.5%	1.4%	-5.9%
Texas	$179.59	$215.55	$180.45	$167.97	16.7%	0.5%	-6.5%
Vermont	$292.05	$347.89	$291.00	$270.87	16.1%	-0.4%	-7.8%
South Dakota	$288.57	$342.01	$283.68	$264.05	15.6%	-1.7%	-9.3%
Maine	$301.47	$362.70	$296.16	$275.67	16.9%	-1.8%	-9.4%
New Mexico	$224.51	$240.05	$214.71	$199.85	6.5%	-4.6%	-12.3%
Rhode Island	$244.60	$276.29	$233.20	$217.06	11.5%	-4.9%	-12.7%
New Hampshire	$340.10	$367.17	$315.32	$293.50	7.4%	-7.9%	-15.9%
Nevada	$267.66	$289.63	$247.44	$230.31	7.6%	-8.2%	-16.2%
Idaho	$300.82	$315.18	$274.16	$255.19	4.6%	-9.7%	-17.9%
Arkansas	$282.25	$302.57	$256.65	$238.89	6.7%	-10.0%	-18.2%
North Dakota	$301.09	$351.61	$270.95	$252.20	14.4%	-11.1%	-19.4%
Florida	$311.69	$327.73	$280.38	$260.98	4.9%	-11.2%	-19.4%
Colorado	$263.86	$283.40	$232.03	$215.98	6.9%	-13.7%	-22.2%
North Carolina	$275.94	$287.80	$241.92	$225.18	4.1%	-14.1%	-22.5%
South Carolina	$228.47	$248.16	$199.72	$185.91	7.9%	-14.4%	-22.9%
New York	$318.69	$316.73	$266.00	$247.60	-0.6%	-19.8%	-28.7%
Georgia	$286.90	$275.39	$234.13	$217.93	-4.2%	-22.5%	-31.6%
Wyoming	$225.60	$211.98	$167.46	$155.87	-6.3%	-34.7%	-44.7%
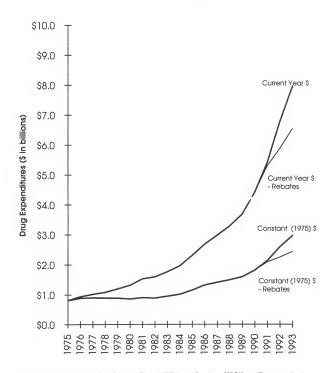
Source: Compiled by the PRIME Institute, University of Minnesota from data found in Pharmaceutical Benefits Under State Medical Assistance Programs,
(Reston, VA: National Pharm. Council, annual reports, 1990 to 1993) and in Report to Congress: Medicaid Drug Rebate Program, 1992, 1993, & 1995.

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Table II.11. Change in Average Prescription Payment:
1990 vs. 1992 After Rebates & Inflation Adjustment

| | | | | | % Change in Avg. Rx Payment | | |
State	FY 1990 Avg. Payment/ Rx	FY 1992 Avg. Payment/ Rx	FY 1992 Avg. Payment/Rx - Rebates	FY 1992 Avg. Payment/Rx - Rebates & infl. Adj. in ('90 Const.$)	FY 1992 vs. FY 1990	FY 1992 - Rebates vs. FY 1990	FY 1992 -Rebates & infl. Adj. vs. FY 1990
West Virginia	$12.49	$19.52	$16.78	$15.61	36.0%	25.5%	20.0%
Connecticut	$15.35	$22.78	$20.09	$18.70	32.6%	23.6%	17.9%
Missouri	$15.62	$23.30	$20.01	$18.63	33.0%	22.0%	16.2%
New Jersey	$19.46	$26.24	$24.93	$23.20	25.8%	21.9%	16.1%
Kansas	$16.30	$23.61	$20.06	$18.68	31.0%	18.8%	12.7%
California	$15.65	$21.15	$18.71	$17.41	26.0%	16.3%	10.1%
Nebraska	$15.00	$18.63	$17.46	$16.25	19.5%	14.1%	7.7%
Washington	$17.13	$21.66	$19.88	$18.50	20.9%	13.8%	7.4%
Maryland	$19.13	$25.77	$22.11	$20.58	25.8%	13.5%	7.0%
Kentucky	$14.09	$18.64	$16.20	$15.08	24.4%	13.0%	6.5%
Alabama	$15.19	$20.50	$17.36	$16.16	25.9%	12.5%	6.0%
Louisiana	$15.91	$21.23	$18.05	$16.80	25.1%	11.8%	5.3%
Minnesota	$16.13	$21.09	$17.92	$16.68	23.5%	10.0%	3.3%
Massachusett	$19.16	$22.00	$21.16	$19.70	12.9%	9.5%	2.7%
Indiana	$17.69	$21.47	$19.52	$18.17	17.6%	9.4%	2.6%
Idaho	$17.04	$21.54	$18.74	$17.44	20.9%	9.1%	2.3%
Mississippi	$17.38	$21.17	$18.72	$17.42	17.9%	7.1%	0.2%
Nevada	$18.96	$23.59	$20.15	$18.76	19.6%	5.9%	-1.1%
Montana	$15.92	$20.87	$16.90	$15.73	23.7%	5.8%	-1.2%
D.C.	$18.81	$22.56	$19.80	$18.43	16.6%	5.0%	-2.0%
National Avg.	$17.71	$21.36	$18.53	$17.25	17.1%	4.4%	-2.7%
Pennsylvania	$18.54	$22.58	$19.22	$17.89	17.9%	3.5%	-3.6%
New Hampshi	$15.24	$18.38	$15.78	$14.69	17.1%	3.4%	-3.7%
Oregon	$16.70	$20.10	$17.21	$16.02	16.9%	3.0%	-4.2%
North Carolin	$19.22	$23.43	$19.70	$18.33	18.0%	2.4%	-4.8%
Vermont	$19.23	$23.54	$19.70	$18.33	18.0%	2.4%	-4.8%
Florida	$19.08	$22.79	$19.50	$18.15	16.3%	2.3%	-4.9%
Tennessee	$14.66	$17.00	$14.98	$13.94	13.8%	2.1%	-5.1%
Alaska	$23.77	$28.26	$24.22	$22.54	15.9%	2.1%	-5.2%
Iowa	$17.32	$21.20	$17.61	$16.40	18.3%	1.9%	-5.4%
Michigan	$15.96	$18.88	$16.10	$14.99	18.3%	1.7%	-5.6%
Arkansas	$17.76	$21.10	$17.90	$16.66	15.5%	0.9%	-6.5%
Georgia	$17.54	$20.68	$17.58	$16.37	15.2%	0.8%	-6.6%
South Carolin	$20.34	$25.33	$20.39	$18.98	19.7%	0.2%	-7.2%
New York	$23.78	$28.10	$23.60	$21.97	15.4%	-0.8%	-8.3%
Virginia	$17.55	$20.05	$17.40	$16.19	12.5%	-0.9%	-8.4%
Hawaii	$17.00	$19.41	$16.62	$15.47	12.4%	-2.3%	-9.9%
Texas	$19.08	$22.22	$18.60	$17.32	14.1%	-2.6%	-10.2%
Maine	$19.06	$22.60	$18.45	$17.18	15.7%	-3.3%	-10.9%
South Dakota	$18.96	$22.06	$18.30	$17.03	14.1%	-3.6%	-11.3%
Colorado	$18.40	$21.63	$17.71	$16.48	14.9%	-3.9%	-11.6%
Oklahoma	$22.50	$25.36	$21.44	$19.95	11.3%	-5.0%	-12.8%
New Mexico	$17.86	$18.72	$16.74	$15.59	4.6%	-6.7%	-14.6%
North Dakota	$17.25	$20.89	$16.10	$14.98	17.4%	-7.2%	-15.1%
Illinois	$15.42	$15.83	$14.35	$13.36	2.6%	-7.4%	-15.4%
Wyoming	$18.07	$21.29	$16.82	$15.65	15.1%	-7.4%	-15.4%
Ohio	$17.53	$18.71	$15.84	$14.74	6.3%	-10.7%	-18.9%
Wisconsin	$19.18	$19.54	$17.11	$15.93	1.8%	-12.1%	-20.4%
Delaware	$18.17	$19.30	$16.11	$15.00	5.9%	-12.7%	-21.1%
Utah	$15.17	$16.27	$13.43	$12.50	6.8%	-13.0%	-21.4%
Rhode Island	$22.00	$20.79	$17.55	$16.33	-5.5%	-25.4%	-34.7%

Source: Compiled by the PRIME Institute, University of Minnesota from data found in Pharmaceutical Benefits Under State Medical Assistance Programs.
(Reston, VA: National Pharm. Council, annual reports, 1990 to 1993) and in Report to Congress: Medicaid Drug Rebate Program, 1992, 1993, & 1995.

**Figure II.1 Medicaid Drug Expenditures in
Current & Constant (1975) Dollars:
1975 to 1993**

Source: P. Pine, et.al., Health Care Financing Review, 1992 Annual Suppl., pp.235-269; and Pharmaceutical
Benefits Under State Medical Assistance Programs, National Pharmaceutical Council, 1975 to 1994.

Figure II.2
Total Medicaid & Drug Recipients:
1975 to 1993

Source: P. Pine, et.al., Health Care Financing Review, 1992 Annual Suppl., pp.235-269; and Pharmaceutical Benefits Under State Medical Assistance Programs, National Pharmaceutical Council, 1975 to 1994.
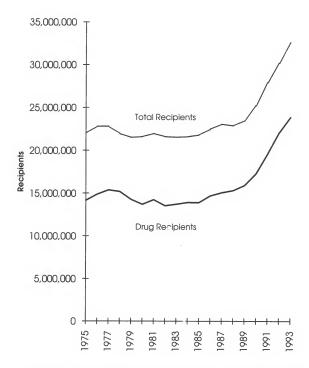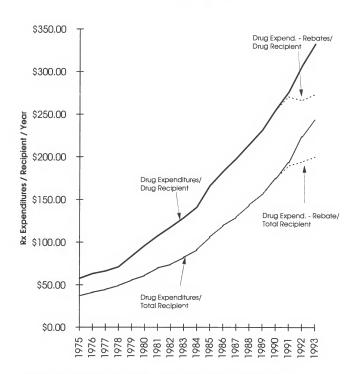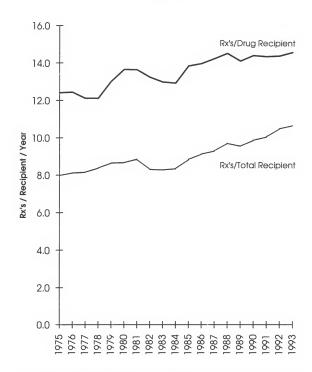
Figure II.3
Annual Medicaid Drug Expenditures per Recipient:
1975 to 1993

Drug Expend. - Rebates/
Drug Recipient

Drug Expenditures/
Drug Recipient

Drug Expend. - Rebate/
Total Recipient

Drug Expenditures/
Total Recipient

Rx Expenditures / Recipient / Year

Source: P. Pine, et.al., Health Care Financing Review, 1992 Annual Suppl., pp.235-269; and Pharmaceutical
Benefits Under State Medical Assistance Programs, National Pharmaceutical Council, 1975 to 1994.

Figure II.4
Medicaid Drug Use Intensity:
1975 to 1993

Source: P. Pine, et.al., Health Care Financing Review, 1992 Annual Suppl., pp.235-269; and Pharmaceutical
Benefits Under State Medical Assistance Programs, National Pharmaceutical Council, 1975 to 1994.

Figure II.5 Annual Percent Change in
Medicaid Drug Expenditure & Use:
1975 to 1993
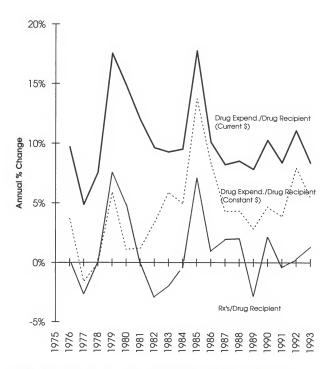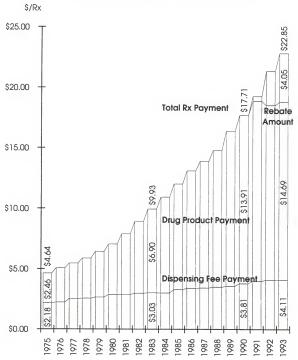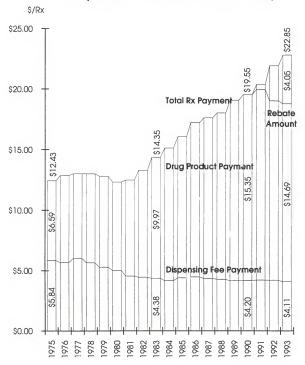
Figure II.6
Medicaid Average Prescription Payment &
Components: 1975 to 1993 in Current $

$/Rx

Total Rx Payment

Rebate Amount

Drug Product Payment

Dispensing Fee Payment

$4.64
$2.46
$2.18
$9.93
$6.90
$3.03
$17.71
$13.91
$3.81
$22.85
$4.05
$14.69
$4.11

SOURCE: Compiled by the PRIME Institute University of Minnesota from data found in Pharmaceutical Benefits Under State Medical Assistance Programs, National Pharmaceutical Council, 1975 to 1994.

Figure II.7
Medicaid Average Prescription Payment &
Components: 1975 to 1993 in Constant 1993 $

$/Rx

Total Rx Payment

Rebate Amount

Drug Product Payment

Dispensing Fee Payment

$25.00 — $22.85
$20.00 — $19.55 $4.05
$15.00 — $14.35
$12.43
$10.00 —
$5.00 —
$0.00 —

$6.59 $9.97 $15.35 $14.69

$5.84 $4.38 $4.20 $4.11

1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993

CH2F07.XLC

Figure II. 8 Medicaid Drug Rebates:
Amounts Accrued and Collected by Quarter
1991 to 1993

SOURCE: Compiled by the PRIME Institute, University of Minnesota from data found in Report to Congress:
Medicaid Drug Rebate Program, 1992, 1993, and 1995 and HCFA estimates.
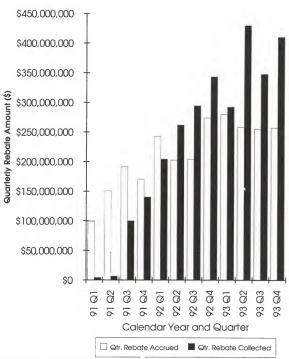
Figure II.9 Medicaid Drug Rebates: Cumulative Amount Accrued, Collected and Uncollected 1991 to 1993

Cum. Rebate Accrued

Cum. Rebate Collected

Cum. Rebate Uncollected

Calendar Year and Quarter

Cumulative Rebate Amount ($)

SOURCE: Compiled by the PRIME Institute, University of Minnesota from data found in Report to Congress: Medicaid Drug Rebate Program, 1992, 1993, and 1995 and HCFA estimates.
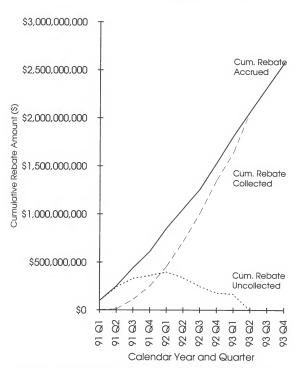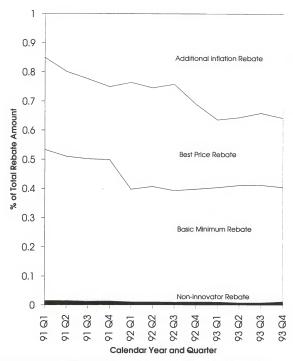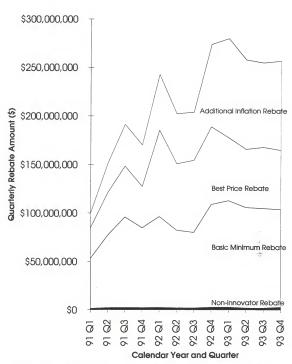
Figure II.10a Medicaid Drug Rebates:
Percent Distribution by Type of Rebate
1991 to 1993

Figure II.10b Medicaid Drug Rebates: Amount Accrued by Type of Rebate 1991 to 1993

SOURCE: Compiled by the PRIME Institute, University of Minnesota from data found in Report to Congress: Medicaid Drug Rebate Program, 1992, 1993, and 1995 and HCFA estimates.

Figure II.10c Medicaid Drug Rebates:
Amount Accrued by Type of Rebate
1991 to 1993

SOURCE: Compiled by the PRIME Institute, University of Minnesota from data found in Report to Congress:
Medicaid Drug Rebate Program, 1992, 1993, and 1995 and HCFA estimates.
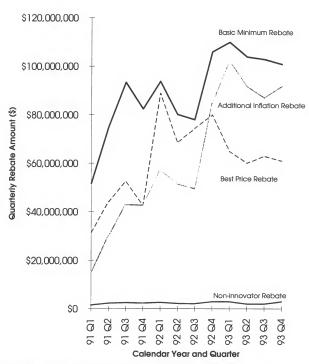
Figure II.11 Medicaid Drug Rebate
Amounts Accrued and Collected as a
Percent of Total Drug Payments: 1991 to 1993

SOURCE: Compiled by the PRIME Institute, University of Minnesota from data found in Report to Congress:
Medicaid Drug Rebate Program, 1992, 1993, and 1995 and HCFA estimates.
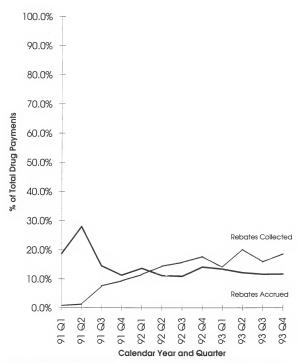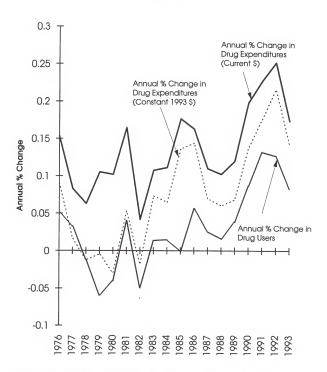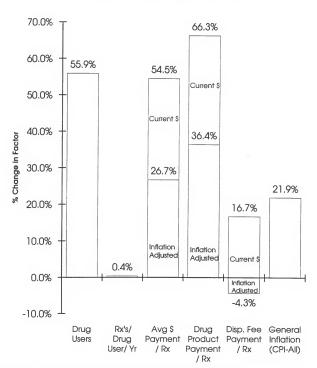
Figure II.12 Annual Percent Change in Medicaid Drug Expenditures & Drug Users: 1975 to 1993

SOURCE: Compiled by the PRIME Institute from data found in Pharmaceutical Benefits Under State Medical Assistance Programs (Reston, VA: National Pharmaceutical Council, 1975 to 1994).

Figure II.13
Change in Factors Contributing to Growth in
Medicaid Drug Expenditures: 1988 to 1993
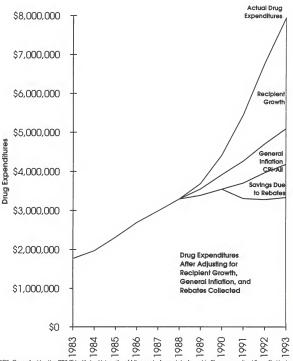
SOURCE: Compiled by the PRIME Institute, University of Minnesota from data found in Pharmaceutical Benefits Under State Medical Assistance Programs (Reston, VA, National Pharmaceutical Council, 1988 to 1994).

Figure II.14 Change in Factors
Contributing to Growth in Medicaid
Drug Expenditures Net of Rebates: 1988 to 1993

SOURCE: Compiled by the PRIME Institute, University of Minnesota from data found in Pharmaceutical Benefits Under State Medical Assistance Programs (Reston, VA, National Pharmaceutical Council, 1988 to 1994).
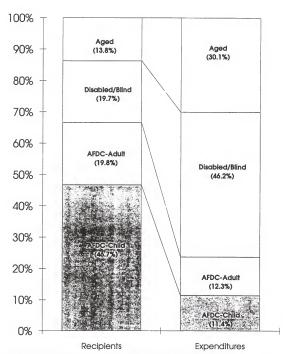
Figure II.15 Medicaid Drug Expenditures After Adjusting for Recipient Growth, General Inflation, and Rebates: 1983 to 1993

SOURCE: Compiled by the PRIME Institute, University of Minnesota from data found in Pharmaceutical Benefits Under State Medical Assistance Programs, (Reston, VA: National Pharmaceutical Council, annual reports 1975 to 1994).

Figure II.16.
Drug Expenditures and Recipients*:
Distribution by Type of Recipient in 1992

Recipients

Aged (13.8%)	
Disabled/Blind (19.7%)	
AFDC-Adult (19.8%)	
AFDC-Child (46.7%)	

Expenditures

Aged (30.1%)	
Disabled/Blind (46.2%)	
AFDC-Adult (12.3%)	
AFDC-Child (11.4%)	

*Based on data from 27 states reporting complete data in each year from 1988 to 1992.
SOURCE: Compiled by the PRIME Institute, University of Minnesota from data found in Pharmaceutical Benefits Under State Medical Assistance Programs (Reston, VA: National Pharmaceutical Council, annual reports, 1988 to 1993).
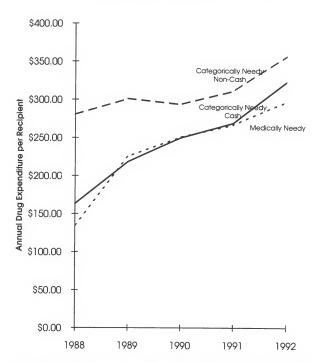
Figure II.17
Annual Drug Expenditure per Drug Recipient
by Basis of Eligibility: 1988 to 1992

Figure II.18
Annual Drug Expenditure per Recipient by
Medical Assistance Status: 1988 to 1992

Source: Compiled by the PRIME Institute, University of Minnesota from 27 states with complete data as found in Pharmaceutical Benefits Under State Medical Assistance Programs, (Reston, VA: National Pharmaceutical Council, 1988 to 1993).

Figure II.19 Percent Change in Drug Expenditures: 1990 vs. 1992 After Rebates & Inflation Adjustment
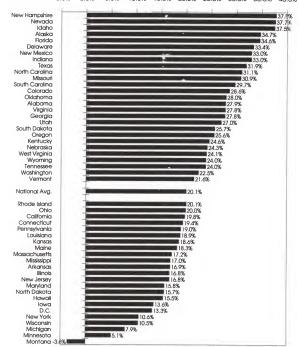
|	Percent
Missouri	51.0%
Kentucky	49.7%
West Virginia	49.5%
Delaware	36.4%
Alaska	36.2%
Alabama	33.6%
Massachusetts	32.4%
Nebraska	32.0%
Indiana	30.8%
New Hampshire	28.0%
Tennessee	27.8%
Washington	27.6%
Nevada	27.6%
Texas	27.2%
Louisiana	27.1%
Idaho	26.4%
Connecticut	26.3%
Utah	25.5%
New Jersey	24.8%
New Mexico	24.7%
Mississippi	24.3%
Oregon	24.0%
Oklahoma	23.7%
Virginia	23.6%
Illinois	22.5%
Kansas	22.2%
Florida	21.9%
California	20.7%
National Total	**19.4%**
South Dakota	18.8%
Pennsylvania	18.2%
Hawaii	18.1%
Ohio	17.2%
D.C.	16.6%
North Carolina	15.5%
Vermont	15.5%
South Carolina	13.6%
Colorado	12.8%
Maryland	12.7%
Iowa	11.9%
Wisconsin	11.2%
Maine	10.6%
Rhode Island	9.9%
Georgia	4.9%
Montana	4.8%
Michigan	4.6%
Arkansas	1.8%
Minnesota	0.0%
North Dakota	-0.6%
Wyoming	-10.0%
New York	-5.0%

SOURCE: Compiled by the PRIME Institute, University of Minnesota from data found in Pharmaceutical Benefits Under State Medical Assistance Programs (Reston, VA, National Pharmaceutical Council, 1988 to 1993); in 1990 constant dollars.

Figure II.20
Percent Change in Drug Recipients:
1990 vs. 1992

	Percent
New Hampshire	37.8%
Nevada	37.7%
Idaho	37.5%
Alaska	34.7%
Florida	34.6%
Delaware	33.4%
New Mexico	33.0%
Indiana	33.0%
Texas	31.9%
North Carolina	31.1%
Missouri	30.9%
South Carolina	29.7%
Colorado	28.6%
Oklahoma	28.0%
Alabama	27.9%
Virginia	27.8%
Georgia	27.8%
Utah	27.0%
South Dakota	25.7%
Oregon	25.6%
Kentucky	24.6%
Nebraska	24.3%
West Virginia	24.1%
Wyoming	24.0%
Tennessee	24.0%
Washington	22.5%
Vermont	21.6%
National Avg.	20.1%
Rhode Island	20.1%
Ohio	20.0%
California	19.8%
Connecticut	19.4%
Pennsylvania	19.0%
Louisiana	18.9%
Kansas	18.6%
Maine	18.3%
Massachusetts	17.2%
Mississippi	17.0%
Arkansas	16.9%
Illinois	16.8%
New Jersey	16.8%
Maryland	15.8%
North Dakota	15.7%
Hawaii	15.5%
Iowa	13.6%
D.C.	13.3%
New York	10.6%
Wisconsin	10.5%
Michigan	7.9%
Minnesota	5.1%
Montana	-3.6%

SOURCE: Compiled by the PRIME Institute, University of Minnesota from data found in Pharmaceutical Benefits Under State Medical Assistance Programs (Reston, VA, National Pharmaceutical Council, 1988 to 1994).

Figure II.21
Annual Medicaid Drug Expenditure per Recipient
Before & After Rebates: 1992

State	After Rebates	Before Rebates
Indiana	$442	$486
Wisconsin	$387	$442
New Jersey	$385	$406
Massachusetts	$379	$389
Nebraska	$344	$367
Connecticut	$339	$384
Pennsylvania	$327	$384
Missouri	$320	$372
Louisiana	$316	$371
New Hampshire	$315	$367
Montana	$311	$384
Kentucky	$307	$354
Virginia	$304	$350
Iowa	$301	$362
Maryland	$296	$346
Maine	$296	$363
Vermont	$291	$348
D.C.	$285	$324
South Dakota	$284	$342
Alaska	$283	$330
Minnesota	$282	$331
Tennessee	$281	$319
Florida	$280	$328
Alabama	$279	$330
Idaho	$274	$315
North Dakota	$271	$352
Hawaii	$271	$316
Ohio	$270	$319
National Avg.	$267	$308
Washington	$267	$291
New York	$266	$317
Oregon	$262	$306
Mississippi	$257	$291
Arkansas	$257	$303
Kansas	$253	$298
Illinois	$252	$277
Nevada	$247	$290
Oklahoma	$245	$290
North Carolina	$242	$288
West Virginia	$236	$274
Delaware	$235	$281
Utah	$235	$284
Michigan	$234	$275
Georgia	$234	$275
Rhode Island	$233	$276
Colorado	$232	$283
California	$219	$247
New Mexico	$215	$240
South Carolina	$200	$248
Texas	$180	$216
Wyoming	$167	$212

1992 Expenditure/Recipient After Rebates

1992 Expenditure/Recipient Before Rebates

SOURCE: Compiled by the PRIME Institute, University of Minnesota from data found in Pharmaceutical Benefits Under State Medical Assistance Programs (Reston, VA, National Pharmaceutical Council, 1988 to 1994).

Figure II.22 Percent Change in Annual Drug Expenditures per Recipient: 1990 vs. 1992 After Rebates & Inflation Adjustment

-50.0% -40.0% -30.0% -20.0% -10.0%   0.0%   10.0%   20.0%   30.0%   40.0%
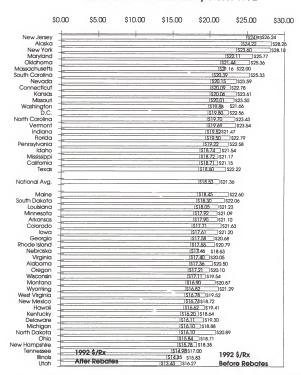
State	Value
West Virginia	33.5%
Kentucky	33.3%
Missouri	29.2%
Massachusetts	18.4%
Louisiana	10.2%
Nebraska	10.2%
New Jersey	9.6%
Mississippi	8.8%
Connecticut	8.5%
Montana	8.1%
Alabama	8.0%
Illinois	6.9%
Washington	6.6%
Tennessee	5.0%
Delaware	4.6%
Kansas	4.4%
D.C.	3.8%
Hawaii	3.1%
Alaska	2.3%
California	1.1%
Wisconsin	0.8%
Pennsylvania	-1.0%
Iowa	-2.0%
Utah	-2.0%
Oregon	-2.2%
National Avg.	-2.9%
Indiana	-3.2%
Ohio	-3.5%
Michigan	-3.6%
Maryland	-3.7%
Minnesota	-5.4%
Virginia	-5.9%
Oklahoma	-5.9%
Texas	-6.9%
Vermont	-7.8%
South Dakota	-9.3%
Maine	-9.4%
New Mexico	-12.3%
Rhode Island	-12.7%
New Hampshire	-15.9%
Nevada	-16.2%
Idaho	-17.9%
Arkansas	-18.2%
North Dakota	-19.4%
Florida	-19.4%
Colorado	-22.2%
North Carolina	-22.5%
South Carolina	-22.9%
New York	-28.7%
Georgia	-31.6%
Wyoming	-44.7%
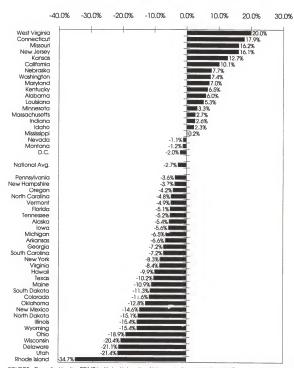
Figure II.23
Medicaid Average Payment per Rx
Before & After Rebates By State: 1992

State	After Rebates	Before Rebates
New Jersey	$24.93	$26.24
Alaska	$24.22	$28.25
New York	$23.60	$28.10
Maryland	$22.11	$25.77
Oklahoma	$21.44	$25.36
Massachusetts	$21.16	$22.00
South Carolina	$20.39	$25.33
Nevada	$20.15	$23.59
Connecticut	$20.09	$22.78
Kansas	$20.06	$23.61
Missouri	$20.01	$23.30
Washington	$19.88	$21.66
D.C.	$19.80	$22.56
North Carolina	$19.70	$23.43
Vermont	$19.69	$23.54
Indiana	$19.52	$21.47
Florida	$19.50	$22.79
Pennsylvania	$19.22	$22.58
Idaho	$18.74	$21.54
Mississippi	$18.72	$21.17
California	$18.71	$21.15
Texas	$18.60	$22.22
National Avg.	$18.53	$21.36
Maine	$18.45	$22.60
South Dakota	$18.30	$22.06
Louisiana	$18.05	$21.23
Minnesota	$17.92	$21.09
Arkansas	$17.90	$21.10
Colorado	$17.71	$21.63
Iowa	$17.61	$21.20
Georgia	$17.58	$20.68
Rhode Island	$17.55	$20.79
Nebraska	$17.46	$18.63
Virginia	$17.40	$20.05
Alabama	$17.36	$20.50
Oregon	$17.21	$20.10
Wisconsin	$17.11	$19.54
Montana	$16.90	$20.87
Wyoming	$16.82	$21.29
West Virginia	$16.78	$19.52
New Mexico	$16.74	$18.72
Hawaii	$16.62	$19.41
Kentucky	$16.20	$18.64
Delaware	$16.11	$19.30
Michigan	$16.10	$18.88
North Dakota	$16.10	$20.89
Ohio	$15.84	$18.71
New Hampshire	$15.78	$18.38
Tennessee	$14.98	$17.00
Illinois	$14.85	$15.83
Utah	$13.43	$16.27

1992 $/Rx
After Rebates

1992 $/Rx
Before Rebates

SOURCE: Compiled by the PRIME Institute, University of Minnesota from data found in Pharmaceutical Benefits Under State Medical Assistance Programs (Reston, VA, National Pharmaceutical Council, 1988 to 1994).

Figure II.24
Percent Change in Average Payment per Rx:
1990 vs. 1992 After Rebates & Inflation Adjustment

State	Percent Change
West Virginia	20.0%
Connecticut	17.9%
Missouri	16.2%
New Jersey	16.1%
Kansas	12.7%
California	10.1%
Nebraska	7.7%
Washington	7.4%
Maryland	7.0%
Kentucky	6.5%
Alabama	6.0%
Louisiana	5.3%
Minnesota	3.3%
Massachusetts	2.7%
Indiana	2.6%
Idaho	2.3%
Mississippi	0.2%
Nevada	-1.1%
Montana	-1.2%
D.C.	-2.0%
National Avg.	-2.7%
Pennsylvania	-3.6%
New Hampshire	-3.7%
Oregon	-4.2%
North Carolina	-4.8%
Vermont	-4.9%
Florida	-5.1%
Tennessee	-5.2%
Alaska	-5.4%
Iowa	-5.6%
Michigan	-6.5%
Arkansas	-6.6%
Georgia	-7.2%
South Carolina	-7.2%
New York	-8.3%
Virginia	-8.4%
Hawaii	-9.9%
Texas	-10.2%
Maine	-10.9%
South Dakota	-11.3%
Colorado	-11.6%
Oklahoma	-12.8%
New Mexico	-14.6%
North Dakota	-15.1%
Illinois	-15.4%
Wyoming	-15.4%
Ohio	-18.9%
Wisconsin	-20.4%
Delaware	-21.1%
Utah	-21.4%
Rhode Island	-34.7%

SOURCE: Compiled by the PRIME Institute, University of Minnesota from data found in Pharmaceutical Benefits Under State Medical Assistance Programs (Reston, VA, National Pharmaceutical Council, 1988 to 1994); in 1990 constant dollars.
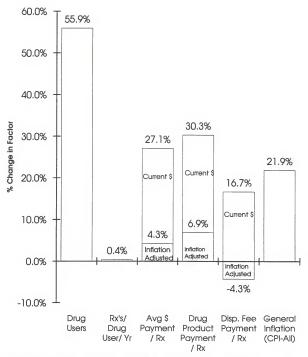
CHAPTER III.

MEDICAID REBATE PROGRAM IMPACT:

STATE CASE STUDIES

The objective for the state-level case studies was to analyze the impact of the drug rebate program on changes in expenditures and utilization of prescribed drugs within the Medicaid programs of a selected set of states. This evaluation builds upon the broad trends in Medicaid drug expenditures and utilization across all states and at the national aggregate level, as discussed in Chapter 2. For these case studies, however, detailed claims and enrollment data were used from the selected states and permit a more in depth analysis of factors driving the broad trends. The state case studies employed detailed person-level enrollment and utilization data and NDC-level drug product data. This enabled analysis of drug expenditures by therapeutic category, drug patent status, and Medicaid recipient eligibility type for each case study state.

The primary focus of these case studies was on changes in drug expenditures before and after the Medicaid rebate program was implemented. The case studies used individual-level claims data to compare drug expenditures for two six-month observation periods before and after implementation of the rebate program in January 1991. The time periods chosen were from January through June in 1990 and the comparable period in 1992. Two states, however, had useable data for only one quarter in 1990. The post-rebate period was chosen to be one year after the rebate program initiation to allow for HCFA and the states to work through implementation issues.

This chapter describes the evaluation objectives for the state case studies, the methods and data sources used in conducting this analysis and the findings resulting from this effort.

III.A. State Case Study Objectives

As noted previously, several factors may contribute to an increase in Medicaid drug program expenditures: increases in enrollment, shifts in the mix of enrollee types, changes in number of prescriptions per person, shifts in the mix of drugs prescribed, price inflation, or some combination of these and other factors. The overall goal of this series of state-level case studies was to determine the relative contribution of various sources to changes in drug expenditures experienced after implementation of the Medicaid drug rebate program. Several specific objectives were addressed for each case study state. These objectives were:

(1)   Determine the change in drug claims and expenditures from 1990 to 1992.

(2)   Identify changes in the number and mix of enrollees from 1990 to 1992.

(3)   Examine changes in drug expenditures by drug patent status and therapeutic category from 1990 to 1992.

(4)   Estimate changes in drug expenditures after adjusting for enrollment growth and shifts in enrollee use rate from 1990 to 1992.

(5)   Calculate drug expenditures net of rebates in 1992 and the change from 1990 drug expenditures.

(6)   Assess changes in drug benefit restrictiveness due to formularies and prior authorization from 1990 to 1992.

(7)   Perform a decomposition analysis to determine the relative role of various factors contributing to change in Medicaid drug expenditures.

III.B. State Case Study Evaluation Methods

This section addresses the methods used in conducting the state-level case studies. First, the methods for selecting case study states is reviewed. Data sources used for this analysis are briefly described. Key variables and their role in the analysis are defined. Finally, the analytical methods used as discussed.

III.B.1. State Selection

In selecting states for the case study analysis several factors were taken into consideration. First, the case study states were to be limited to those states participating in the MSIS system. This was necessary so that the MSIS files for both personal summary information and claims level data would be available. This criterion narrowed the set of states to about 25.

From the list of states participating in HCFA's MSIS claims data system, several criteria were used to isolate the states for case study. These criteria included: (1) exclusion of states with significant capitated plan enrollment, especially if prescribed drug claims data was likely to be incomplete; (2) exclusion of states where there were a large number of state-specific drug codes that could not be matched to NDC codes; (3) exclusion of states with an unusually large proportion of adjustments to drug claims; and (4) inclusion of only those states with evidence of "believable" numbers of unique NDC codes for paid claims (see Appendix Table 1).

Next, consideration was given to the size and policy differences among states. Both large and small states were desired in the study set to determine if the size of a state differentially affected its change in expenditures. Also, states with different policy environments were sought in the study set. In particular, it was considered desirable to have states with differing levels of restrictions to drugs before and after OBRA 90. Subsequent to OBRA 90, some states became much less restrictive in the use of prescribed drug products (e.g., Missouri, which had a restrictive formulary until 1991), while other states maintained similar levels of restriction or became more restrictive (e.g., Arkansas imposed global limits on the number of prescriptions per recipient per month). A summary of the states participating in MSIS and their status on various selection criteria is presented in Table III.1. Based on these factors, the following nine states were selected for the in-depth case study analysis: Arkansas, Georgia, Indiana,

Iowa, Kansas, Missouri, New Hampshire, Utah, and Washington. Due to problems with enrollment data from Kansas, this state was dropped from some of the case study analyses.

III.B.2. Data Sources

The data sources used for the case studies on selected states included the HCFA Medicaid Statistical Information System (MSIS) data, the HCFA-maintained rebate program files, and data from a vendor, First Data Bank. These data sources are described in the following sections. Additional data for specific state analyses is from the HCFA Form 2082 as reported in the annual publications of the National Pharmaceutical Council. This data source was discussed in Chapter II.

MSIS Files. MSIS files are created to match a uniform file structure developed by HCFA. About 25 states currently participate in this program, which uses the state Medicaid Management Information Systems (MMIS) to produce the data. The data are submitted on a quarterly basis to HCFA. The MSIS files relevant to this project are:

Annual personal summary files. These files include one record for each person who was enrolled during the fiscal year, or who had a service paid for during the fiscal year. Each record includes demographic and enrollment information and a summary of utilization and Medicaid expenditures.

Prescription drug claims files. Claims for outpatient prescription drugs are a subset of the larger 'other claims' file in the MSIS system, known as the 'Claims-OT' file. This file contains one record for each individual outpatient service, procedure, or drug claim paid or adjusted during the quarter. The file includes all outpatient drug claims paid for by Medicaid; these claims can be identified by the presence of codes in the "SS drug code" field, by type of service "prescription drug", or by a variety of HCFA Common Procedure Code System (HCPCS) indicators (e.g., J-codes for injections).

The MSIS Claims-OT files include both claims for prescription drugs and claims for all other outpatient services. All non-drug claims were eliminated from the dataset including:

- Claims on the Claims-OT files that are not drug claims (e.g., claims with all 8s or all blanks in the "state-specific drug code" field were eliminated);

- Claims where the drug code (NDC) did not match any drug code on First Data Bank's 1992 cumulative drug file[1];

- Claims for supplies and other non-drug items;

- Adjustment claims;

- Claims and enrollment information for individuals enrolled in capitated plans during the study period.

- Claims for drugs not included on HCFA's rebate utilization or pricing files. These drugs are not subject to the rebate (presumably their manufacturers have not completed agreements with HCFA).

Some state-specific drug codes were converted to the equivalent NDC number. State codes for approximately ten drugs in Georgia and one in Missouri were manually converted to NDC codes and replaced in the data set.

"Date of service" claims files and matching enrollment files for the study periods were developed. MSIS claims files are "date of payment" files, which means that they include claims paid in a certain time period regardless of when the service was provided. The claims files developed for this study included claims for prescribed drug provided during the study period, and the enrollment files include only those individuals enrolled during any of the study months.

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[1]The 1992 FDB file which was used was created without a date restriction, and thus, in theory, included any NDC which had ever been valid, even if it has now been replaced or deleted. Thus it was not necessary to match our 1990 claims to the 1990 FDB file to match NDC numbers.

MSIS claims files were used for fiscal quarters 2 through 4 (claims paid during January through September) to build date-of-service files for January through June in each of the study years. Most drug claims on MSIS appeared to be paid in the month of service or the next month. Since files extending through payment dates in September were used, this allowed for a minimal payment lag of three months - for drugs provided in June - and a maximum lag of 9 months - for drugs provided in January.

MSIS personal summary files were used for fiscal years 1990 and 1992 to identify individuals enrolled during any month from January through June. These enrollees were used to construct denominator files and enabled calculation of use rates that are meaningful. Persons enrolled for only a portion of a given six-month study period were represented by the appropriate fraction of the enrollment period. Two of the study states (Georgia and Missouri) had no drug codes on claims before the third quarter of 1990. The study files for these two states were based on a three-month period (April through June) in 1990.

HCFA Rebate Files. There are four file types in the HCFA rebate files: (1) a product file, (2) a pricing file, (3) a utilization file, and (4) a manufacturer file.

Product File. This file is maintained on each drug belonging to a drug company for which there is a signed rebate agreement. For each NDC code, the file indicates the drug type (prescription or over-the-counter), category (SS, IMS, NMS), unit type (tablet, capsule, ml), units per package size, therapeutic equivalency code, DESI code, FDA approval date, and product name as registered with the FDA. This information is provided by each labeler (i.e., manufacturer, labeler, repackager, marketer) to HCFA.

Pricing File. For each NDC, this file maintains cumulative drug pricing data on quarterly average manufacturer's price, and for single source and innovator multiple source drugs, the baseline AMP (for the quarter ending September 30, 1990) and the best price during each quarter. Each manufacturer provides these pricing data to HCFA on a quarterly basis. Unit rebate amounts (URAs) are calculated by HCFA on a quarterly basis from this information and are included on the file. These rebate amounts are utilized by states to determine the rebate amounts due from manufacturers.

Utilization File. For each NDC, state Medicaid programs provide HCFA with the manufacturer invoice data required by OBRA 90. This file contains the total number of units and prescriptions provided to recipients, the total reimbursement amounts to dispensers, and the total rebate amount claimed. These data are provided on a quarterly basis, and undergo minor edits at HCFA. Note that for the state case studies, utilization data were derived from the MSIS claims files, rather than from the rebate utilization files. However, the rebate utilization file was used to calculate a per-prescription rebate amount to attach to the claims. This was calculated using the rebate amounts claimed as a percentage of total reimbursements for each NDC to pharmacy providers, and applying this rebate percentage to each MSIS claim.

First DataBank Files. First DataBank is a commercial drug information firm that produces two files that were relevant to this Medicaid rebate program evaluation. The first file is the National Drug Data File (NDDF), which provides a wealth of information on drug characteristics specific to each NDC code. The second file type is the Medicaid Data File (MDF), which maintains information on Medicaid program coverage and reimbursement policies in each state. State prior authorization indicators, drug coverage codes, and Maximum Allowable Cost (MAC) limits at both the state and federal level are maintained on each drug in this file. Both the MDF and the NDDF contain one record per NDC.

Although the HCFA rebate program does not use the First DataBank in its operation, these files were very helpful for classifying drugs into various categories (i.e., therapeutic categories, patent and regulatory status). The file created for this project by First Data Bank was a customized version. First Data Bank updates drug characteristic and payment characteristic files at least monthly and transmits these updates to subscribers, including HCFA. Several prior price changes are contained in the files provided. Year-end files for 1989, 1990, 1991 and 1992 were created for this project which contained all needed pricing and other drug product information.

The First Data Bank (FDB) data were used for several purposes. First, the state-specific pricing data for the relevant time periods were used in evaluating changes in price. Second, the file's information on state drug program coverage characteristics was used to develop variables indicating the degree of restrictiveness of state formularies and prior authorization programs. Third, the NDDF file was used to identify non-drug items, including supplies and other non-drug items not covered under the rebate program. Finally, use of FDB information on therapeutic class and hierarchical ingredient codes allowed aggregations to the therapeutic category and drug entity levels.

III.B.3. Definitions of Key Variables

The definitions for a number of key variables used in the decomposition analysis are provided.

Enrollment. Enrollment data were derived from the eligibility data compiled in the MSIS Personal Summary Files. Persons actively enrolled during any portion of the observation period were treated as enrollees. Adjustments were made for persons enrolled for less than the entire study period, with those enrolled for the full period represented by (1) and those enrolled for some fraction of the period represented by the relevant fraction. For example, a person enrolled for three months of a six-month study period was represented as 0.5 enrollees in that period.

Use Rates. Use rate indicates the proportion of enrollees who received at least one prescription drug during the observation period. The use rate measures the percentage shift in the ratio of drug users per 1,000 enrollees, controlling for changes in the mix of NDCs and overall enrollment. This change is calculated for each of four eligibility groups for each NDC. The index score for each NDC is the sum of the changes in use rate for each eligibility group weighted by its 1990 share among the NDC's total users. The overall index is the weighted sum of the NDC scores, using 1990 expenditure weights.

Price. Price levels were assigned to specific drugs using First DataBank file information on Average Wholesale Price (AWP), state Maximum Allowable Costs (MACs), and federal MACs. The algorithm selected a state MAC if one were available, a federal MAC if there was no state MAC listed, and an AWP price if neither type of MAC was available on the file. For the generic entities constructed on NMS drugs, weighted average prices were developed. Note that actual prices as charged to state Medicaid programs were not available. Instead, the FDB data provided a proxy for price levels and changes on a per-drug unit basis.

Quantity. The only variable available on the MSIS files for drug quantity is the number of prescriptions, generally (1) per claim. Actual number of tablets dispensed (or other units of dosage forms) are not available on the MSIS claims files. Thus, quantity can only be represented by the number of prescriptions.

Therapeutic Class. A classification scheme for 48 different therapeutic classes of drugs was developed using information available on the First Data Bank files. The classification scheme used is somewhat more specific than the most aggregated therapeutic class level available on FDB, which defines 33 types of agents by most common intended use.

Drug Patent Status. Although the HCFA rebate files define whether drugs are single source (SS), innovator multiple source (IMS), non-innovator multiple source (NMS), or over-the-counter (OTC), these classifications were available for the period after OBRA 90 only. Therefore, variables from First Data Bank were used to construct drug "patent" status for both 1990 and 1992, including drugs that changed type. The drug patent status had to be determined for each study period, since patent status can change over time. For example, a drug that is single source in 1990 and loses its patent or market exclusivity in 1991 would become an innovator multiple source product in 1992. Also, prescription drugs can be reclassified to OTC status.

III.B.4. Unit of Analysis for MSIS Claims Analysis

The unit of analysis for these state-level MSIS case studies was the drug product line item or the NDC level. Each NDC represents a unique drug entity, dosage form, strength, package size, and manufacturer or labeler. All SS and IMS drugs were studied at the NDC level. NMS, or generic drugs, were aggregated so that all generically equivalent drug products, regardless of the manufacturer or labeler, are included in the same generic group. There are two major reasons why the NDC was chosen as the basic unit of analysis. First, Medicaid rebate utilization and unit rebate amounts are determined at the NDC level. Second, use of the NDC-level permits merging information about the drug (e.g., therapeutic class) to the expenditure and utilization files.

Aggregation of NDCs for NMS drugs to the generic equivalent group level was performed because the large numbers of interchangeable generic competitor product NDCs can create large shifts over time among such NDCs, although these shifts are not of substantial policy interest with respect to the rebate program. These shifts, however, cause problems for assessing changes over time in NDC utilization. Each generic equivalent group represents the same chemical composition, dose form, strength, and package size across NDCs, and is constructed using information about the drug

contained in the First Data Bank files. Prices assigned to the generic equivalent groups were weighted averages of the component NDC's prices.

III.B.5. Computational and Analytical Methods

Ten descriptive table formats were used to summarize the findings of this state case study analysis. A detailed description of the statistical and computational methods used to produce each table, and the variables contained therein, is provided as an Appendix.

The analytical approach used for the detailed state case studies reflects a core reality in the analysis of drug claims -- the year-to-year instability in the NDCs represented in the claims files. Many of the NDCs used in 1990 do not appear in 1992 and vice versa. As noted above, we have partially addressed this issue by aggregating the many NDCs representing different manufacturers for a generic drug. The remaining changes in NDCs represent new drugs, new forms of existing drugs, duplicate NDCs listed by a manufacturer for identical products. and products of repackagers and re-labelers who have recently entered the market. This phenomenon of new NDCs for existing drug . warrants further study for policy implications relevant to the rebate program. This reality of shifting NDC numbers complicates attempts to measure price inflation and shifts in utilization using the same universe of NDCs.

Two schemes were used for disaggregating the sources of increase in Medicaid drug expenditures: (1) calculation of the changes in expenditures for all NDCs according to whether they are for new or existing drugs, and (2) decomposition of the percentage rate of increase into component sources of changes in prices, enrollment and utilization. The impact of the rebate program is explicitly accounted for in both schemes, which are presented in detail in the accompanying appendix description.

Disaggregation by Type of Drug. The 1990-1992 change in NDCs can be dealt with by subdividing all NDCs into one of the following categories:

* NDCs used in 1990 only (drugs which were discontinued or are no longer used),

* NDCs used in 1992 only which can be further subdivided into:

  - NDCs which were previously available nationally, but were not represented in the
    claims for a given state in 1990 ,

  - New NDCs for existing drugs which were marketed under another NDC in 1990,

  - NDCs for new drugs since 1990 (these may be new drug entities, strengths, dosage forms, or
    package sizes),

* NDCs used in both 1990 and 1992 in the study state.

This classification provides a simple means of estimating how much of the change in expenditures is due to shifts into drug products which had previously been restricted by formularies or prior authorization in some states. The net effect of the rebate program can be estimated by subtracting the rebate amounts from total drug payments for each drug type and category.

Decomposition of Percentage Rates of Change. The second classification of components of growth is restricted to those NDCs that were used in both 1990 and 1992 (e.g. the last line of the typology presented in the previous section.) This restriction allows the calculation of the contribution of price and utilization effects as follows:

Total Percentage Change in Expenditures =

> Weighted Percentage Change in Prices (Laspeyre price index) +

> Weighted Percentage Change in Use Rate (users per 1,000 enrollees)+

> Weighted Percentage Change in Intensity (prescriptions per user) +

> Weighted Increase in Medicaid Enrollment +

> Cross-products between the four components.

Each of the four components is independently calculated as an index across all NDCs, where the weights for each NDC are defined as the 1990 proportion of all prescribed drug expenditures. The index for the Medicaid enrollment effect is calculated across four enrollment groups for each NDC and therefore uses two multiplicative weights. For each NDC, its 1990 proportion of all expenditures is multiplied by the sum of the 1990 proportion of eligibility groups in the NDC's expenditures, and by the rate of increase of the enrollment group. Due to simultaneous changes in the factors, 11 cross-product terms are required for the components to add to a total rate of change in expenditures. Errors in the measurement of price and quantity make this decomposition inexact.

Aggregations at the NDC-level of analysis were performed to arrive at similar data for the total of all drugs and all users for each of 48 therapeutic classes of drugs, for drugs by patent status in 1990 and 1992, and for each type of eligible person using the drug (aged, disabled, AFDC-adult, AFDC-children). The overall focus of this decomposition analysis was to develop descriptive tables on these various subsets of drugs and enrollee types.

Enrollment and Use Rate Adjustment. Since exogenous enrollment growth may account for a significant proportion of the increase in drug expenditures, all expenditures can be adjusted with the following identity:

Total Expenditures in 1992 =

Expenditure per User 92 * Users per Enrollee 92 * Number of Enrollees 92

The analysis then adjusts for changes in enrollment by asking, "What if the 1992 use patterns were the same as in 1990, but states had 1990 enrollment?" The number of 1990 enrollees in each eligibility category is then multiplied by the 1992 ratio of users per enrollee and expenditures per user.

III.C. Findings on Changes In Drug Expenditures:
Before and After the Drug Rebate Program

The drug expenditures by Medicaid recipients before and after implementation of the rebate program have been analyzed in detail for the case study states. The results of these analyses can be presented from a variety of perspectives including breakdowns by enrollee type, drug type, drug patent status, and therapeutic category. A number of indicators are useful for understanding the impact of the rebate program including: the change in drug expenditures from 1990 to 1992, the change in drug expenditures net of rebates, and the amount of rebates as a percent of total drug expenditures.

III.C.1. Change in Drug Expenditures
Before and After the Rebate Program

The total drug expenditures for case study state Medicaid programs between 1990 and 1992 grew by amounts ranging from 21% in Arkansas to 115% in Missouri (Table III.2). The influence of enrollment increases can be minimized by examining the expenditure per enrollee per year. Although Missouri had the lowest annualized expenditure per enrollee per year in 1990 ($192), this amount had grown to $338 by 1992 (Table III.2 and Figure III.1). This 76% increase was the highest of any study state. Georgia actually experienced a decrease in expenditure per enrollee and Arkansas held essentially even between 1990 and 1992.

The intensity of prescription use (Rx's/person/year) showed modest changes in both directions across study states. Missouri, however, experienced a 33% growth in the prescription use rate, 11.9 to 15.9 prescriptions per person per year (Figure III.2). This substantial growth appears to be due to Missouri's removal of a 5 prescription per month limit rather than the OBRA 90 legislation. At the same time that Missouri was removing its prescription limits, the state of Arkansas was implementing and

tightening a limit on the number of prescriptions a Medicaid recipient can obtain in a month. The Arkansas limit began in 1991 as a 6 prescriptions per month limit and the drug use intensity decreased from about 17.0 to 14.3 prescriptions per drug user per year (based on HCFA 2082 data as reported in the NPC annual reports). In 1992, Arkansas tightened their restriction to 3 prescriptions per month and the drug use intensity decreased further from 14.3 to 13.3 prescriptions per drug user per year (Figure III.3). Prescriptions limits appear to have played a significant role in drug use intensity in both directions. Instituting a limit results in a decrease in drug use intensity, as in Arkansas. Eliminating a limit results in an increase in drug use intensity, as in Missouri. An assessment of changes in patient outcomes or impact on total health care expenditures would have been interesting, but these were beyond the scope of this project.

The amount of change in drug expenditures after rebates varied widely across states, while the rebate amount as a percent of drug expenditures was relatively stable (Table III.3 and Figure III.4). This observation would suggest that the amount of variation in expenditure increases is independent of the rebate amount. Drug expenditures in 1990 were compared with 1992 drug expenditures, with 1992 drug expenditures minus rebates, and with 1992 expenditures minus rebates and adjustment for changes in enrollment (Table III.4 and Figure III.5). After adjusting for rebates and enrollment growth, seven of the eight useable case study states had less than 7% increase in expenditures over the two year period. For these seven states this increase is equal to, or less than, the general rate of inflation.

A central question raised by the elimination of restrictive formularies, as mandated by OBRA 90, is how much any induced changes in utilization offset the benefits of rebate payments. This question is complicated by the numerous other changes driving shifts in utilization patterns. These other changes include: (1) changes in the size and composition of Medicaid enrollment, (2) underlying trends in the introduction of new drugs, (3) shifts in other state regulations such as the imposition, or removal, of monthly prescription limits, and (4) creation of new NDCs that reflect duplicate listings and identical

versions of existing products with different prices. Untangling all these possible factors within the resources available to this project was impossible, but a measure of differences among states was constructed to indicate the degree to which change in utilization and expenditure were offset by the benefits of rebate payments.

The ratio of rebate payments per additional dollar of expenditure from changes in utilization was calculated (Table III.5 and Figure III.6). Both figures were adjusted to remove the effect of the often dramatic changes in enrollment. This adjustment was made by multiplying expenditures per enrollee in 1992 times 1990 enrollment in each of four enrollment categories. Note that Kansas was excluded from this analysis due to problems with enrollment data.

Section I of the table (Table III.5) estimates the change in expenditures between 1990 and 1992 attributable to changes in utilization. A key variable used to indicate the degree of substitution is the generic sequence number -- an identifier which is unique with respect to drug entity, dosage form, and strength. NDCs for generically equivalent drug products from different manufacturers can be assigned the same generic sequence ID. An NDC which has a generic sequence number that did not exist in 1990 is deemed to be a new drug. The lines on this key table are defined as follows:

- Line I.a. is the sum of expenditures on new drugs, defined as NDCs for which the generic sequence number did not exist in 1990.

- Line I.b. substitution of existing drugs, summarizes the result of the process by which new NDCs, replace old NDCs for existing products (in the sense that they do not have a new generic sequence number). This is the sum of: (1) 1992 expenditures for drugs with existing NDCs that were available in 1990 but never prescribed and covered by Medicaid in a given study state, (2) 1992 expenditures for products with previously existing generic sequence numbers but new NDCs, and (3) subtracting 1990 expenditures for NDCs prescribed in 1990 but not in 1992. This latter group are primarily discontinued products or inactive NDCs which have been replaced with a new NDC number for some reason.

- Line I.c. utilization of old NDCs, refers to changes in expenditures for those NDCs that were prescribed in both 1990 and 1992. These expenditures were analyzed in more detail in Appendix Tables 9 and 10.

- Line I.d. is the sum of lines 1 through 3.

• Line I.e. lists rebate payments adjusted for 1990 enrollments in the same manner as the drug expenditures were adjusted.

Section II of the table (Table III.5) contains two benefit ratios in which rebates are divided by the additional expenditures resulting from increased utilization. Both the numerator and the denominator were adjusted for changes in enrollment. A ratio above 1.0 indicates that the state received more rebate payments than it spent in additional dollars because of changes in utilization. The first ratio considers all of the additional utilization; the second ratio assumes that new NDCs (truly new drugs) would have been covered under the pre-1991 formularies and were therefore excluded from this indicator of induced changes in utilization. If the full amount of change in utilization is considered, all states except Missouri gained from the rebate program. Four of the states had modest gains -- between 47 and 93 cents per dollar of additional rebates beyond the expenditures generated by changes in utilization patterns. Arkansas and Georgia did remarkably well under the rebate program, but also made substantial changes in their drug benefit restrictions. Monthly prescription limits and prior authorization programs have had a major impact in curtailing utilization in these states. In contrast to the highly regulated response of these two states, Missouri's essential deregulation of the pharmacy benefit produced a sharply differing net increase concurrent with implementation of the rebate program.

Note that this table describes the range of relative outcomes among states. Its aggregate nature and inexact measurement of substitution, however, make it a less certain estimate of the absolute net value of the rebate program's benefits. A much closer analysis NDC by NDC would be required to investigate the degree to which changes in regulatory status correlate with changes in utilization. Moreover, the results are quite sensitive to the assumptions made about the impact of enrollment changes on expenditures.[2]

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[2]While in the benefit ratio both the numerator (rebate payments) and denominator (expenditures due to changes in utilization) are adjusted for enrollment, the impacts are not symmetric. Such adjustment increase the ratio because they reduce estimated expenditures more than estimated

III.C.2. Change in Drug Expenditures by
Enrollee Type

The annualized drug expenditures by enrollee type were calculated (Appendix Table 4) including breakouts for the aged, disabled, poverty related AFDC adults, and poverty related AFDC children. The annualized drug expenditure per enrollee increased in all study states, except Georgia, from 1990 to 1992 (Figure III.7 and Table III.6a and 6b). When examining the rates of change in utilization measures across states and across enrollee types (Table III.6b), Missouri was found to have a dramatically higher rate of increase in prescriptions per enrollee per year for all enrollee types. This appears to be the result of Missouri's removal of the limit on prescriptions per person per month. In contrast, two states (Georgia and Arkansas) both of which had implemented a monthly limit on prescriptions, showed decreases in prescription utilization per enrollee for all enrollee types except AFDC children.

An unusual finding appears to be valid, that is, Indiana and New Hampshire both had an overall decrease in prescriptions per enrollee per year of 5.8% and 7.1%, respectively. This overall result occurred despite the fact that none of the individual enrollee types had a decrease in drug use intensity. Examination of the growth in number and types of enrollees in these two states shows a disproportionately high growth of AFDC-child recipients when compared with growth of all other recipient types. Indiana had an increase from 114,000 to 146,000 AFDC-child recipients between 1990 and 1992, while New Hampshire had an increase from 13,000 to 23,000. Since the AFDC-child group represent very low intensity drug users, this disproportionate increase caused a decline of the overall

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rebates. If an identical factor, x, is used to reduce both rebate payments (R) and estimated 1992 expenditures (Y), the numerator declines by R_{adj}/R which equals x, if $R_{adj} = x*R$. In contrast, payments decline by a factor Y_{adj}/Y, which equals $(x*Y_{92} - Y_{90}) / (Y_{92} - Y_{90})$. If Y_{92} is defined as $(1 + y)*Y_{90}$, the ratio of adjusted to unadjusted growth in expenditures is calculated as: $(x*(1 + y) - 1) / y)$. For values of x less than 1.0, this factor for the denominator of a benefit ratio is always less than x, the reduction factor for the numerator. As a result, in all cases where changes in enrollment increase expenditures, adjusting for this change will increase the calculated benefit ratio.

drug use intensity in the state, even though the drug use intensity of AFDC-child recipients and all other recipient groups increased marginally.

III.C.3. Decomposition of Factors
Contributing to Drug Expenditure Changes

Changes in total prescribed drug expenditures are dependent on a number of factors. The detailed claims data were used to calculate independently the change due to each of the following:
* Drug expenditures net of rebates,
* Drug product prices (Laspeyre's Index),
* Changes in number of users per 1,000 enrollees,
* Changes in numbers of Rxs per user (intensity),
* Enrollment changes.

The independent contributions of these factors in each state, as well as the aggregate changes in total drug expenditures and drug expenditures net of rebates have been calculated (Table III.7). The lowest aggregate increase in expenditures before rebates were considered was observed in Arkansas (9.4%) and the greatest increase in Missouri (72.3%). Net of rebates, Arkansas had a decline in expenditures, while other states displayed modest increases ranging from 1% (Georgia) to 36% (Missouri). Examining the components of the Arkansas experience indicates that a decline in number of users per 1,000 enrollees contributed greatly to the expenditure change; in fact, total expenditures rose at a lower rate than total enrollment for Arkansas between the 1990 and 1992 study periods.

Drug product price indexes independently contributed from 11.3% to 21.4% increases in drug expenditures, among the eight states examined. These price indexes were computed before considering the effect of rebates on lowering effective prices. There appears to be a good degree of

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consistency from state to state in drug product price increases. Given that these figures were determined by weighting each NDC's utilization, the differences in drug product mix will contribute to some differences in the price index values from state to state. Seven of the eight states examined displayed price index changes ranging from 11% to 16%, over the two-year period examined.

The effect of number of users per 1,000 enrolled persons, in aggregate, displayed greater variation from state to state. Three states actually experienced declines in use rates, while five other states displayed increases ranging from 1% (Indiana, Washington) to 21% (Missouri). Missouri's large increase is most likely due to the elimination of the monthly prescription limit and, in part, to the removal formulary restrictions on several major therapeutic categories.

The number of prescriptions used per drug recipient displayed minimal changes in all states, except, Missouri. These changes ranged from a 2.7% decline in Arkansas, to an increase of 9.5% in Missouri. The Missouri change is most likely related to the removal of a restriction on the number of prescriptions per month that was eliminated concurrently with implementation of OBRA 90 rebate and formulary provisions. Missouri was not required to make this change in its prescription limit, but chose to do so as part of the "opening access" process related to OBRA 90. All other states studied displayed less than a 5% increase or decrease in the prescription use intensity factor, suggesting that, in general, OBRA 90 had very little direct impact on this measure. Enrollment factors increased in every state examined, ranging from 12.2% (Iowa) to 36.6% (New Hampshire). OBRA 90 led to enrollment expansions in nearly every state; the degree of the expansion's effect on number and types of enrollees in each state was dependent upon individual state eligibility guidelines prior to OBRA 90, as well as state-specific demographic and need factors. Thus, a certain amount of variation in this factor was expected.

In comparing the enrollment factor increases (aggregated across eligibility groups) to the expenditures net of rebates, all but one state (Missouri) indicated a greater increase in the enrollment factor than in expenditures net of rebates. This phenomenon is further detailed through the development of overall rebate benefit ratios for each state studied, presented earlier in this chapter.

When each factor contributing to overall expenditure growth is examined in the context of various eligibility categories, similar patterns emerge (Table III.8). Except for the aged, the greatest rates of increase are usually observed in the enrollment factor. For the aged, drug product prices showed greater percentage increases than enrollment in every state studied. Iowa, in particular, experienced a 27.6% increase in drug product prices for the aged recipients using prescribed drugs, but only an 8.3% increase in their enrollment.

Enrollment rises in all categories besides the aged were substantial in the eight states studied. These increases ranged from a 7.7% rise in Iowa's AFDC-adults to an 85.7% rise in New Hampshire's AFDC-adults and 73.5% growth in AFDC-children in New Hampshire. As with the aggregated data, the values for the individual eligible groups in numbers of prescriptions per user changed little over the study period in all states except Missouri. No more than a 5% increase or decrease in this factor was observed in the other seven states, except for a single category in Indiana.

The pattern revealed by the decomposition analysis is relatively clear. Enrollment effects were substantial in each of the states examined, with some variation in the magnitude of the effect but in excess of a 10% aggregate rise in all states. Number of prescriptions per user had a relatively insignificant effect, except in Missouri, with less than 5% change up or down over the two years in all other states. Drug product prices (weighted by NDC use and expressed as an index) rose in all states, but are likely to have been ameliorated by the effect of rebates not taken into account here with respect to effect on drug product prices. A few states (Missouri, Arkansas, and Georgia) displayed more

marked changes than others in the number of prescribed drug users per 1,000 enrolled, which is most likely due to changes in the types of restrictions (formularies removed, prior authorization expanded or imposed, and monthly prescription limits imposed or removed).

III.C.4. Changes in Drug Expenditure by
Drug Type and Patent Status

Drug products can be classified into groups based on patent and regulatory status. For purposes of this study, the following four categories were used: single source drugs, innovator multiple source drugs, non-innovator multiple source drugs, and over-the-counter drugs. Drug expenditures and rebates in Missouri in 1992 were used to illustrate the role played by drugs in each patent status. First, single source drugs accounted for the largest share of drug expenditures at 57% (Figure III.8). These single source drugs represented an even larger share of the rebate dollars (65%). The innovator multiple source drugs were responsible for the second largest share of the drug expenditures and, as well, the second largest share of drug rebates. The higher share of rebates dollars for SS and IMS drugs is of no surprise, since these drugs have a higher basic rebate percentage (12.5% and later 15.7%) and they have a best price and additional (inflation adjustment) rebate, while NMS drugs had a lower basic rebate percentage (10% and 11%) and no best price or additional rebate. Non-innovator multiple source drugs (generics) were 19% of the expenditure dollars and 5% of the rebate dollars. OTC drugs accounted for about 4% of both expenditures and rebates.

Within patent status the rebates accrued were examined as a percentage of the total drug expenditure (Figure III.9). Total rebates accrued for single source drugs represented 23.3% of single source drug payments in 1992 in Missouri. Innovator multiple source drugs provided an even higher rebate as a percentage of total drug payments at 26.6%. The OTC drugs had a similar percentage to

the single source drugs at 23.9%. the generic drug (NMS) products produced a rebate accrual that represented only 5.2% of the total drug payments for generic drugs.

Another means of classifying drug products is by how long they have been on the market or covered by the state Medicaid program. As described earlier in this chapter, the drugs in this study were grouped into subsets as follows: drug products with NDCs used in both 1990 and 1992, drug products with NDCs not paid for by Medicaid in 1990 but covered in 1992, drug products with new NDCs for existing products, NDCs for new versions of old products based on strengths, dosage forms, package sizes or labelers , NDCs for truly new drug products. The drugs used in both 1990 and 1992 accounted for more than 80% of both drug expenditures and rebates (Figure III.10). The other groups of drugs each represented from 3% to 7% of expenditures and rebates. Each of the types of 'new' NDCs appears to have paid a lower rebate percentage compared to total drug payments than the NDCs which were used in 1990 and continued to be used in 1992.

III.C.5. Changes in Drug Expenditure by Therapeutic Category

Another basis for grouping drugs is by therapeutic category. A hybrid therapeutic category coding scheme with 48 categories was developed for this project using therapeutic coding schemes resident within the First Data Bank's Master Drug Data File. The percentage of total drug expenditures consumed by each therapeutic category was calculated. The expenditure patterns for Arkansas and Missouri were examined to illustrate the expenditure patterns (Figure III.11 and Figure III.12). The H2 anti-ulcer drugs were the largest category in both states and accounted for more than 10% of expenditures. Calcium channel blockers were ranked second in expenditures by therapeutic category in both states.

A second set of figures by therapeutic categories displays the percentage change in drug expenditures between 1990 and 1992 (Figure III.13 and Figure III.14). The first striking observation is that certain categories in Missouri increased by as much as 400% to 900%. In general, these categories were drugs that had been restricted by the formulary prior to OBRA 90 and which were now openly available to Medicaid recipients. More than one-half (28 of 48) of the therapeutic categories in Missouri doubled in drug expenditures from 1990 to 1992. All therapeutic categories had an increase in drug expenditures in 1992 over 1990. In contrast, Arkansas actually had a decrease in expenditures for about one-fourth of the therapeutic categories.

When the change in drug expenditures was adjusted by subtracting rebates, Missouri still experienced an increase in expenditures for all but one therapeutic category (insulin) (Figure III.15 and Figure III.16). About one-half of the categories in Arkansas decreased in expenditure after accounting for rebates. A curious finding was that the therapeutic category (biologicals) with the greatest increase in Missouri was the category with the greatest decrease in Arkansas. In both states, however, biologicals were one of the smallest categories when ranked by total drug expenditures.

The final perspective on therapeutic category by state was a look at the rebate amount as a percent of total expenditures (Figure III.17 and Figure III.18). In both state-level case studies the top three categories included oral contraceptives, insulins, and estrogenic agents; their rebates were from 33% to 50 % of the total drug expenditures for the category. The overall rebate amount was 18% of expenditures for Arkansas and 21% for Missouri. Rebate amounts expressed as a percent of total drug expenditures appear to be fairly similar across states, despite considerable variation in the drug program policies of the individual states.

III.C.6. Change in Number of NDCs and
Growth of Repackagers

Drug products can be aggregated at different levels based upon the drug entity, dosage for, strength, package size, and manufacturer or labeler of the product (Figure III.19 and Table III.9). A unique NDC number exists for each product at the most specific level. The 58,930 prescription NDCs on the market in 1992 actually represent only 2,227 drug entities in a variety of dosage forms, strengths, package sizes, and labelers. For each drug entity there are about 1.5 dosage forms, 2.4 different dosage forms and strengths (Table III.9).

Even though the total number of prescription-related NDCs decreased between 1990 and 1992 from 64,671 to 58,930, there was a dramatic growth in the number of single source NDCs over the same period (3,578 to 6,073). This number of new single source NDCs appears to be far beyond what would be expected from new drug approvals by the FDA. Each year about 20 to 40 new drug entities are approved for marketing and several hundred new drug products including different strengths and dosage forms enter the market as single source products. The jump of single source drug products by nearly 2,500 NDCs in two years seemed unusual. After examining the products accounting for this growth at the NDC level, a large proportion (1,254 of the 2,495 additional SS NDCs) of these products were found to be relabeled or repackaged single source products.

A repackaged single source product is one which still bears the originators trade name, so that the originator appears to have given at least implicit approval of the re-marketing of its product; otherwise it would have pursued trademark infringement against the re-labeler. The repackager applies for, and obtains, a new and separate NDC for its relabeled version of the originator drug product. At the same time the repackager can also set the list price and directly, or at least indirectly, the average wholesale price (AWP) for the product. Many of these repackaged products were found to have significantly

higher AWPs per unit than the originator product, ranging from 5% increase to as much as 500% increase. The growth of single source repackaged products has reached the point where one-third of all SS NDCs in 1994 were for repackaged drug products with potentially higher AWP, and perhaps AMP prices (Table III.10). The implications of this repackaging practice on the rebate program warrant further exploration. That is, are these products being used in the Medicaid program? How does this practice affect the rebate amount? Is the higher price more than enough to offset the benefit of the rebate paid?

III.D. Access and Measures of Drug Restrictiveness

One of the trade-offs made in drafting the OBRA 90 legislation which established the rebate program was the prohibition of restrictive formularies. Some states responded to this change by using other approaches (i.e., prior authorization) to manage the pharmacy benefit program, while others simply deregulated access to prescriptions under the Medicaid program. Drugs may be excluded from coverage by Medicaid, even after OBRA 90, based on a list of exclusions specified in the legislation. OBRA 90 contained other provisions, besides rebates, relevant to state decisions on prescribed drug coverage that were intended to expand recipient access to drug products:

1) State formularies needed to include drugs covered by valid rebate agreements, if used for medically accepted purposes;

2) Drugs newly approved by the FDA are to be covered for at least six months without formulary restriction; and

3) Drugs could be subject to prior authorization, provided that a response needed to be made to requests for prior authorization within 24 hours and emergency supplies of 72-hours therapy could be dispensed, if necessary.

Also, certain specified drug categories can also be excluded from state formularies, as follows:

a. Anorexia or weight gain agents.
b. Fertility promotion agents.
c. Cosmetic or hair growth agents.

    d. Agents for the symptomatic relief of cough and colds.
    e. Smoking cessation agents.
    f. Prescription vitamins and mineral products, except prenatal vitamins and fluoride
       preparations.
    g. Nonprescription drugs.
    h. Covered outpatient drugs for which the manufacturer seeks to require (as a condition of sale)
       that associated tests or monitoring services be purchased exclusively from the manufacturer
       or its designee.
    i. Drugs described in section 107(c)(3) of the Drug Amendments of 1962 (DESI drugs, of
       questionable efficacy).
    j. Barbiturates.
    k. Benzodiazepines.

States could continue to operate prior authorization programs on any drug or to expand those programs, as long as the response time specifications were met. State Medicaid agencies were also required to begin drug utilization review programs by January 1, 1993, meeting minimum standards specified in OBRA 90.

For this analysis a restrictiveness index was created to determine the relative change in access to drug products over time due to formularies, prior authorization, or other coverage rules. The Medicaid coverage restrictiveness index is a scale from 1 to 100. A value of 100 indicates the theoretical condition in which 100% of the marketed drug products are restricted or not covered. Conversely, a value of 1 indicates that virtually all of the marketed drug products are available without restriction. For each of the case study states, the First Data Bank Medicaid Drug File contained information on formulary status, coverage status, prior authorization, other coverage codes, and maximum allowable cost amounts for generic products.

Since this study is based on before and after OBRA 90 time periods, the coverage restrictiveness index was calculated for each state for the two time periods under study. For the pre-OBRA period the formulary status as of December 31, 1989 was used to represent the coverage conditions that would have been in effect in the first several months of 1990. The formulary status as of December 31, 1992 was used to represent the restrictiveness status during the second study period.

The index was constructed by identifying the number of unique drug products on the market during the time period. A unique drug product can be identified by counting the number of active national drug codes (NDCs). The number of active NDCs for prescription drugs at the end of 1989 was 64,071. By 1992 the number of prescription NDCs actually fell to 58,930. This decline is almost entirely accounted for by a decrease in the number of non-innovator multiple source drug products (generics). In other words, there were fewer generic products on the market in 1992 than there were in 1989. This is primarily due to fewer firms marketing generics, rather than fewer drug products which are off patent.

The number of NDCs not covered, or not paid for, by each state's Medicaid program was determined and used as the numerator over the total number of NDCs. This results in a percentage of NDCs restricted to Medicaid recipients. The OBRA 90 legislation prohibited formularies in the manner which many Medicaid programs had been accustomed. Some states found other approaches for managing the pharmacy benefit such as prior authorization and limits on the number of prescriptions per month per recipient.

The Medicaid coverage restrictiveness index method was applied to the First DataBank file for each of the case study states. For the 1990 period several states had virtually no restrictions; i.e., Indiana nad a score of 3 and New Hampshire had a score of 2 (Figure III.20 and Table III.11). In contrast, other states had many restrictions such as a score of 67 for Missouri, meaning that nearly two-thirds of the drug products were not reimbursed by the Missouri Medicaid program prior to OBRA 90. Georgia had a similarly restrictive formulary with a coverage restrictiveness score of 64 in 1990. A state whose restrictiveness index decreases from a higher number to a lower number is a state where the access to prescribed drugs has become less restrictive in terms of formulary restrictiveness. Missouri, for example, saw its coverage restrictiveness index change from 67 to 39 between 1990 to 1992 (Figure III.20). In the other direction Indiana had an index score of 3 in 1990 and 36 in 1992 which means that access to drugs become somewhat more restrictive.

An interesting phenomenon occurred with the enactment of the OBRA provisions. Since only those drug products of manufacturers participating in the rebate program would be covered by HCFA in the federal financial participation process, there were a number of NDCs for drug products that were not participating in the rebate program. These firms and their drug products were predominantly generics, so that even though about 30% to 40% of the NDCs on the market were not covered by the Medicaid program, in nearly all cases a generic equivalent from another manufacturer or marketer was available. If the set of drugs not covered by any state due to lack of rebate agreements is subtracted out of the restrictiveness index for 1992 the role of drug coverage restrictions in various states becomes much clearer. An adjustment was made to the 1992 restrictiveness coverage index by subtracting 30 percentage points from the calculated index for the post-OBRA set of about 30% of all NDCs which are not covered by a rebate agreement.

The restrictiveness index value of about 35 to 40 can be viewed as a baseline driven primarily by the limitations on payment from drugs of manufacturers not participating in the rebate program. Since most of this baseline of 35 to 40 is composed of generically equivalent products, a baseline restrictiveness score of 30 to 35 does not functionally limit access to drug products for Medicaid patients. The coverage restrictiveness scores for the post-OBRA period were standardized and adjusted for drugs not covered by rebate agreements by subtracting 30 points from the restrictiveness index. States such as Indiana, Iowa, New Hampshire, and Utah had very little change in restrictiveness after OBRA 90 (Figure III.22 and III.23 and Table 11.b). In contrast, other states including Missouri, Georgia, Arkansas, and Washington had a dramatic shift to being less restrictive.

When the change in restrictiveness scores is examined for each of the case studies states, the restrictiveness scores of two states (Georgia and Missouri) decreased by 17 and 28 percentage points, respectively (Figure III.21). The fact that Missouri became much less restrictive with respect to access to drugs is reflected in the findings in other parts of this chapter, where Missouri was found to have a substantial increase drug expenditures and utilization.

Expenditure, utilization, and cost factors related to the Medicaid drug program have been described. Also, rebate payments resulting from the OBRA 90 mandated drug rebate program have been examined. The next chapter explores the administrative aspects of implementing the rebate program including cost estimates for operation of the program.

Table III.1
Drug Policy, Performance and Other Criteria for State Selection†

	Little or No Formulary Prior to OBRA 90 [ ]*		Substantial Formulary Prior to OBRA 90	
90 to 92 Change in Drug Recipients Greater than Average and 90 to 92 Change in Drug Expend./Recip. Greater than Average	Alaska Delaware # Utah #	[X, +, 49, 15%, 60%, 0%] [III, v, 48, 0%, 64%, 0%] [VIII, +, 38, 34%, 50%, 0%]	Alabama Kentucky # Missouri #	[IV, +, 21, 80%, 92%, 3%] [IV, +, 16, 62%, 85%, 0%] [VII, v, 15, 47%, 57%, 6%]
90 to 92 Change in Drug Recipients Greater than Average and 90 to 92 Change in Drug Expend./Recip. Less than Average	Indiana # Nevada New Hampshire Vermont Wyoming	[V, -, 12, 60%, 70%, 0%] [IX, +, 45, 0%, 0%, 0%] [I, -, 43, 66%, 55%, 10%] [I, +, 41, 30%, 80%, 0%] [VIII, -, 50, 0%, 51%, 0%]	Georgia # Washington #	[IV, +, 14, 83%, 81%, 0%] [X, +, 20, 85%, 93%, 5%]
90 to 92 Change in Drug Recipients Less than Average and 90 to 92 Change in Drug Expend./Recip. Greater than Average	Iowa # Montana	[VII, +, 27, 65%, 70%, 16%] [VIII, +, 44, 21%, 47%, 0%]	Hawaii Kansas #	[IX, +, 39, 60%, 80%, 3%] [VII, +, 33, ?%, ?%, 0%]
90 to 92 Change in Drug Recipients Less than Average and 90 to 92 Change in Drug Expend./Recip. Less than Average	Maine # New Jersey North Dakota Pennsylvania Wisconsin #	[I, +, 34, 10%, 20%, 0%] [II, +, 9, 73%, 92%, 2%, &] [VIII, -, 47, 70%, 90%, 0%] [III, -, 3, 78%, 87%, 15%, &] [V, +, 18, 60%, 77%, 19%]	Arkansas # California	[VI, +, 29, 55%, 80%, 0%] [IX, +, 1, 60%, 76%, 10%, &]

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† Data based on HCFA 2082 and state program information as reported in "Pharmaceutical Benefits
  Under State Medical Assistance Programs" (Reston, VA: National Pharmaceutical Council)
  annual volumes from 1990, 1991, 1992, 1993.
[ ]* Other factors considered in selection of study states:
  * HCFA/geographic region,
  * prior authorization program in 1990 and 1992 ('+' yes in both years, '-' no in both years,
    'v' dropped prior authorization between 1990 and 1992),
  * state rank by total Medicaid drug expenditures in 1992,
  * % of claims submitted electronically in 1990,
  * % of claims submitted electronically in 1992,
  * % of Medicaid eligibles enrolled in HMOs in 1993, and
  * quality of MSIS claims (e.g., NDC coding) designated by '&' for states considered problematic.
Study states based on selection of one state from each of the eight table cells and one additional
  state from those categories where one or more states discontinued a prior authorization program.

Table III.2
Total Drug Expenditures, Enrollees, and Related Measures
By State 1990 and 1992

All Eligibles -1990

State	Total Drug Expenditures	Total Enrollees	Number of Prescriptions	Expenditure/ Prescription	Expenditure/ Enrollee/ Year*	Rx/ Enrollee/ Year*
Arkansas	$28,684,715	210,999	1,645,037	$17.44	$271.89	15.6
Georgia	$68,461,622	567,225	3,799,304	$18.02	$241.39	13.4
Iowa	$27,278,550	201,865	1,512,613	$18.03	$270.27	15.0
Indiana	$53,733,183	287,311	3,151,860	$17.05	$374.04	21.9
Missouri	$38,269,650	399,534	2,376,774	$16.10	$191.57	11.9
N. Hampshire	$5,660,226	37,107	363,315	$15.58	$305.08	19.6
Utah	$8,188,651	85,407	530,622	$15.43	$191.76	12.4
Washington	$39,546,864	374,780	2,258,824	$17.51	$211.04	12.1

All Eligibles -1992

State	Total Drug Expenditures	Total Enrollees	Number of Prescriptions	Expenditure/ Prescription	Expenditure/ Enrollee/ Year*	Rx/ Enrollee/ Year*
Arkansas	$34,678,151	254,720	1,640,532	$21.14	$272.28	12.9
Georgia	$93,012,136	781,524	4,547,088	$20.46	$238.03	11.6
Iowa	$39,537,614	229,483	1,789,095	$22.10	$344.58	15.6
Indiana	$90,519,236	423,666	4,378,804	$20.67	$427.31	20.7
Missouri	$82,115,932	486,456	3,862,980	$21.26	$337.61	15.9
N. Hampshire	$10,176,502	58,977	536,614	$18.96	$345.10	18.2
Utah	$14,065,680	116,097	729,424	$19.28	$242.31	12.6
Washington	$65,093,623	486,274	2,977,977	$21.86	$267.72	12.2

% Change 90-92

State	Total Drug Expenditures	Total Enrollees	Number of Prescriptions	Expenditure/ Prescription	Expenditure/ Enrollee/ Year*	Rx/ Enrollee/ Year*
Arkansas	20.89%	20.72%	-0.27%	21.23%	0.14%	-17.39%
Georgia	35.86%	37.78%	19.68%	13.52%	-1.39%	-13.14%
Iowa	44.94%	13.68%	18.28%	22.54%	27.50%	4.04%
Indiana	68.46%	47.46%	38.93%	21.26%	14.24%	-5.79%
Missouri	114.57%	21.76%	62.53%	32.02%	76.23%	33.49%
N. Hampshire	79.79%	58.94%	47.70%	21.73%	13.12%	-7.07%
Utah	71.77%	35.93%	37.47%	24.95%	26.36%	1.13%
Washington	64.60%	29.75%	31.84%	24.85%	26.86%	1.61%

*Data has been extrapolated to an annualized estimate.
Data are for six months of utilization, except Georgia and Missouri, which are based on three months of utilization.
The three months of data were extrapolated to represent six months.

Table III.3
Summary of State Drug Expenditures
Unadjusted for Enrollment Changes

State	Total Drug Expenditures	NDCs Used in 1990 Only	NDCs Used in 1992 Only: Old NDCs	New NDCs/ Existing Drugs	Drugs Used Both	
					New Drugs	1990 and 1992
1990: Baseline						
Arkansas	$27,771,519.00	$491,628.00	$0.00	$0.00	$0.00	$27,279,891.00
Georgia	$33,538,722.00	$1,312,438.00	$0.00	$0.00	$0.00	$32,226,294.00
Iowa	$26,710,884.00	$429,204.00	$0.00	$0.00	$0.00	$26,281,680.00
Indiana	$49,628,720.00	$938,983.00	$0.00	$0.00	$0.00	$48,689,737.00
Missouri	$18,680,692.00	$389,193.00	$0.00	$0.00	$0.00	$18,291,499.00
N. Hampshire	$5,440,592.00	$214,415.00	$0.00	$0.00	$0.00	$5,226,177.00
Utah	$7,492,195.00	$165,970.00	$0.00	$0.00	$0.00	$7,326,225.00
Washington	$37,573,212.00	$278,309.00	$0.00	$0.00	$0.00	$37,294,903.00
1992: Before Rebates						
Arkansas	$33,915,865.00	$0.00	$571,714.00	$2,252,791.00	$1,253,414.00	$29,837,946.00
Georgia	$45,477,281.00	$0.00	$715,701.00	$2,119,600.00	$1,707,577.00	$40,934,403.00
Iowa	$38,613,902.00	$0.00	$227,726.00	$1,795,285.00	$1,177,004.00	$35,413,887.00
Indiana	$83,863,647.00	$0.00	$648,758.00	$3,946,177.00	$3,018,293.00	$76,250,419.00
Missouri	$3₀,785,372.00	$0.00	$2,660,312.00	$2,838,904.00	$1,770,333.00	$31,515,823.00
N. Hampshire	$9,804,733.00	$0.00	$212,376.00	$806,224.00	$233,649.00	$8,552,484.00
Utah	$12,911,435.00	$0.00	$219,157.00	$601,314.00	$495,048.00	$11,595,916.00
Washington	$63,062,522.00	$0.00	$474,131.00	$3,662,615.00	$2,584,260.00	$56,341,516.00
1992: After Rebates						
Arkansas	$27,866,341.00	$0.00	$457,506.00	$1,782,118.00	$1,114,392.00	$24,512,325.00
Georgia	$36,390,090.00	$0.00	$619,811.00	$1,657,419.00	$1,490,017.00	$32,622,843.00
Iowa	$30,959,215.00	$0.00	$199,393.00	$1,429,741.00	$1,033,849.00	$28,296,232.00
Indiana	$66,636,291.00	$0.00	$579,690.00	$3,130,512.00	$2,613,567.00	$60,312,522.00
Missouri	$30,790,588.00	$0.00	$2,143,430.00	$2,340,916.00	$1,484,981.00	$24,821,261.00
N. Hampshire	$7,768,300.00	$0.00	$172,266.00	$652,404.00	$200,096.00	$6,743,533.00
Utah	$10,178,057.00	$0.00	$186,929.00	$487,335.00	$426,557.00	$9,077,235.00
Washington	$49,163,751.00	$0.00	$397,234.00	$2,903,462.00	$2,223,040.00	$43,640,014.00
1992 Rebates as % 0f Total Drug Expend.						
Arkansas	17.84%		19.98%	20.89%	11.09%	17.85%
Georgia	19.98%		13.40%	21.81%	12.74%	20.30%
Iowa	19.82%		12.44%	20.36%	12.16%	20.10%
Indiana	20.54%		10.65%	20.67%	13.41%	20.90%
Missouri	20.61%		19.43%	17.54%	16.12%	21.24%
N. Hampshire	20.77%		18.89%	19.08%	14.36%	21.15%
Utah	21.17%		14.71%	18.95%	13.84%	21.72%
Washington	22.04%		16.22%	20.73%	13.98%	22.54%

% Change in Total Drug Expenditures

State	1990 vs. 1992	1990 vs. 1992 - Rebate	1990 vs. 1992 -Rebate w/Enroll. Adj.
Total Drug Expenditures			
Arkansas	22.12%	0.34%	-12.82%
Georgia	35.60%	8.50%	-11.37%
Iowa	44.56%	15.90%	3.06%
Indiana	68.98%	34.27%	5.23%
Missouri	107.62%	64.83%	42.93%
N. Hampshire	80.21%	42.78%	6.93%
Utah	72.33%	35.85%	6.53%
Washington	67.84%	30.85%	3.87%
Drugs Used in Both 1990 & 1992			
Arkansas	9.38%	-10.15%	-21.67%
Georgia	27.02%	1.23%	-17.27%
Iowa	34.75%	7.67%	-4.15%
Indiana	56.60%	23.87%	-2.75%
Missouri	72.30%	35.70%	18.06%
N. Hampshire	63.65%	29.03%	-2.70%
Utah	58.28%	23.90%	-2.74%
Washington	51.07%	17.01%	-6.88%

Table III.5
Relationship of Rebate Payments to Changes in Expenditures from
Shifts in Utilization Adjusted for Enrollment Changes
(in $ 1,000s)

	Arkansas	Georgia	Iowa	Indiana	Missouri	New Hamp.	Utah	Washington
I. Change in Expenditure Due to*:								
a. New Drugs**	$1,063.7	$1,374.7	$1,043.3	$2,274.5	$1,527.3	$166.8	$381.9	$2,034.8
b. Substitution of existing NDCs ***	$1,909.7	$1,011.5	$1,340.7	$2,659.2	$4,304.2	$512.2	$475.9	$2,923.3
c. Utilization of old NDCs	($2,544.70)	($1,972.30)	$514.2	$2,049.4	$4,485.2	$346.3	$373.3	$2,080.9
d. Total change in utilization	$428.5	$413.9	$2,898.2	$6,983.1	$10,316.7	$1,035.3	$1,231.1	$7,039.0
e. Rebate payment	$5,272.6	$7,429.7	$6,809.6	$13,478.9	$6,934.7	$1,508.8	$1,982.3	$11,049.0
II. Benefit Ratios								
a. Rebates/total change in utilization	12.30	17.95	2.35	1.93	0.67	1.47	1.61	1.57
b. Rebates/Total change in utilization net new drugs	****	****	3.67	2.86	0.79	1.76	2.33	2.21

SOURCE: Compiled by Mathematica Policy Research from a data set developed from the HCFA MSIS and rebate files databases.

NOTES:

* All figures adjusted by calculating 1992 expendituteses with 1990 enrollments.

** New drugs are those NCDs whose combination of drug entity, dosage form and strength did not exist in 1990.

*** Substitution of NDCs is the net amount from subtracting expenditures on NDCs used only in 1990 form the sum of expenditures for NDCs that existed in 1990, .
    but were not prescribed in a state plus expendeitures for new NDCs for existing drugs.

**** Ratios would be based on negative changes in utilization expenditures.

Table III.6a Medicaid Drug Use Patterns by Enrollee Type for Selected States: 1990 and 1992

Rx/Enrollee/Yr

	Total		Aged		Blind/Disabled		AFDC-Adult		AFDC-Child	
	1990	1992	1990	1992	1990	1992	1990	1992	1990	1992
Arkansas	15.59	12.88	30.85	26.17	21.74	17.42	9.63	7.96	4.93	5.32
Georgia	13.40	11.64	32.41	31.09	24.16	22.46	10.47	8.74	3.98	4.54
Indiana	21.94	20.67	65.54	70.05	41.72	44.90	14.64	15.28	5.19	6.17
Iowa	14.99	15.59	43.42	45.04	26.62	28.22	9.44	10.24	4.93	5.29
Missouri	11.90	15.88	34.33	47.15	24.00	34.84	7.02	10.39	3.14	4.39
New Hamp.	19.58	18.20	53.65	62.02	31.46	32.90	8.75	9.14	4.14	4.67
Utah	12.43	12.57	44.75	45.72	32.17	33.23	11.81	13.12	4.21	5.01
Washington	12.05	12.25	35.82	37.41	26.03	27.60	9.53	9.80	4.34	4.63
Wt. Avg.	14.45	14.42	38.69	41.26	27.14	28.86	10.05	10.51	4.23	4.93

Drug $/Enrollee/Yr

	Total		Aged		Blind/Disabled		AFDC-Adult		AFDC-Child	
	1990	1992	1990	1992	1990	1992	1990	1992	1990	1992
Arkansas	$271.89	$272.28	$539.39	$566.39	$455.71	$467.48	$141.53	$141.01	$58.65	$69.42
Georgia	$241.39	$238.03	$603.08	$670.35	$498.59	$563.88	$167.87	$151.68	$51.85	$65.54
Indiana	$374.04	$427.31	$1,067.91	$1,323.31	$849.92	$1,176.58	$240.59	$317.90	$64.72	$95.02
Iowa	$270.27	$344.58	$762.05	$943.65	$578.05	$791.26	$164.15	$209.71	$69.35	$88.74
Missouri	$191.57	$337.61	$558.64	$946.30	$453.64	$924.72	$99.19	$207.21	$36.02	$67.35
New Hamp.	$305.08	$345.10	$780.37	$1,052.11	$608.24	$794.87	$134.75	$179.43	$50.05	$73.15
Utah	$191.76	$242.31	$652.91	$838.99	$631.11	$832.31	$173.48	$241.26	$47.09	$70.57
Washington	$211.04	$267.72	$642.67	$817.68	$569.58	$773.24	$147.76	$188.69	$51.65	$67.12
Wt. Avg.	$249.35	$302.55	$665.78	$842.60	$558.36	$763.29	$157.97	$202.72	$52.47	$73.21

$/Rx

	Total		Aged		Blind/Disabled		AFDC-Adult		AFDC-Child	
	1990	1992	1990	1992	1990	1992	1990	1992	1990	1992
Arkansas	$17.44	$21.14	$17.48	$21.64	$20.96	$26.84	$14.69	$17.72	$11.90	$13.04
Georgia	$18.02	$20.46	$18.61	$21.56	$20.63	$25.11	$16.04	$17.36	$13.01	$14.44
Indiana	$17.05	$20.67	$16.29	$18.89	$20.37	$26.20	$16.43	$20.81	$12.48	$15.41
Iowa	$18.03	$22.10	$17.55	$20.95	$21.72	$28.04	$17.38	$20.48	$14.06	$16.77
Missouri	$16.10	$21.26	$16.27	$20.07	$18.90	$26.54	$14.12	$19.95	$11.48	$15.34
New Hamp.	$15.58	$18.96	$14.55	$16.97	$19.33	$24.16	$15.39	$19.63	$12.08	$15.67
Utah	$15.43	$19.28	$14.59	$18.35	$19.62	$25.05	$14.69	$18.39	$11.18	$14.09
Washington	$17.51	$21.86	$17.94	$21.86	$21.88	$28.02	$15.51	$19.25	$11.89	$14.49
Wt. Avg.	$17.25	$20.97	$17.21	$20.42	$20.57	$26.44	$15.72	$19.29	$12.41	$14.86

SOURCE: Estimates based on MSIS personal file and Claims-OT data for 6-month period in each year extrapolated to one year.

Table III.6b Percent Change in Medicaid Drug Use Patterns by Enrollee Type for Selected States: 1990 and 1992

1990 to 1992 % Change

Rx/Enrollee/Yr

	Total 1990 vs. 1992	Aged 1990 vs. 1992	Blind/Disabled 1990 vs. 1992	AFDC-Adult 1990 vs. 1992	AFDC-Child 1990 vs. 1992
Arkansas	-17.4%	-15.2%	-19.9%	-17.4%	8.0%
Georgia	-13.1%	-4.1%	-7.1%	-16.5%	13.9%
Indiana	-5.8%	6.9%	7.6%	4.4%	18.9%
Iowa	4.0%	3.7%	6.0%	8.4%	7.3%
Missouri	33.5%	37.4%	45.1%	47.9%	39.9%
New Hamp.	-7.1%	15.6%	4.6%	4.4%	12.7%
Utah	1.1%	2.2%	3.3%	11.1%	19.0%
Washington	1.6%	4.4%	6.0%	2.9%	6.7%
Wt. Avg.	-0.2%	6.7%	6.4%	4.6%	16.5%

1990 to 1992 % Change

Drug $/Enrollee/Yr

	Total 1990 vs. 1992	Aged 1990 vs. 1992	Blind/Disabled 1990 vs. 1992	AFDC-Adult 1990 vs. 1992	AFDC-Child 1990 vs. 1992
Arkansas	0.1%	5.0%	2.6%	-0.4%	18.4%
Georgia	-1.4%	11.2%	13.1%	-9.6%	26.4%
Indiana	14.2%	23.9%	38.4%	32.1%	46.8%
Iowa	27.5%	23.8%	36.9%	27.8%	28.0%
Missouri	76.2%	69.4%	103.8%	108.9%	87.0%
New Hamp.	13.1%	34.8%	30.7%	33.2%	46.1%
Utah	26.4%	28.5%	31.9%	39.1%	49.9%
Washington	26.9%	27.2%	35.8%	27.7%	30.0%
Wt. Avg.	21.3%	26.6%	36.7%	28.3%	39.5%

1990 to 1992 % Change

$/Rx

	Total 1990 vs. 1992	Aged 1990 vs. 1992	Blind/Disabled 1990 vs. 1992	AFDC-Adult 1990 vs. 1992	AFDC-Child 1990 vs. 1992
Arkansas	21.2%	23.8%	28.1%	20.6%	9.6%
Georgia	13.5%	15.9%	21.7%	8.2%	11.0%
Indiana	21.2%	16.0%	28.6%	26.7%	23.5%
Iowa	22.6%	19.4%	29.1%	17.8%	19.3%
Missouri	32.0%	23.4%	40.4%	41.3%	33.6%
New Hamp.	21.7%	16.6%	25.0%	27.6%	29.7%
Utah	25.0%	25.8%	27.7%	25.2%	26.0%
Washington	24.8%	21.9%	28.1%	24.1%	21.9%
Wt. Avg.	21.6%	18.7%	28.5%	22.7%	19.7%

SOURCE: Estimates based on MSIS personal file and Claims-OT data for 6-month period in each year extrapolated to one year.

Table III.7
Decomposition of Changes in Drug Expenditures:
1990 vs. 1992

State	Total Drug Expend.	Drug Expend. Net of Rebates	Drug Product Prices	Drug Users per 1,000 Enrollees	Rx's per User	Changes in Enrollment Mix
Total for All Eligibles						
Arkansas	9.4%	-10.2%	11.3%	-12.7%	-2.7%	15.4%
Georgia	27.0%	1.2%	12.7%	-8.9%	-2.0%	23.3%
Iowa	34.8%	7.7%	21.4%	-0.3%	4.1%	12.2%
Indiana	56.6%	23.9%	16.4%	1.1%	4.4%	29.2%
Missouri	72.3%	35.7%	12.3%	21.5%	9.5%	15.1%
N. Hampshire	63.7%	29.0%	14.4%	1.7%	3.2%	36.6%
Utah	58.3%	23.9%	15.9%	4.7%	-1.3%	27.8%
Washington	51.1%	17.0%	15.9%	1.1%	0.0%	26.0%

Note: Independent factors will not sum across to equal total expenditure changes, due to cross-product terms

Table III.8
Decomposition of Changes in Drug Expenditures:
By Basis of Eligibility 1990 vs. 1992

State	Total Drug Expend.	Drug Expend. Net of Rebates	Drug Product Prices	Drug Users per 1,000 Enrollees	Rx's per User	Changes in Enrollment Mix
Aged Eligibles						
Arkansas	3.9%	-14.9%	11.4%	-12.0%	-1.0%	5.5%
Georgia	13.3%	-9.5%	11.7%	-10.8%	-3.0%	10.0%
Iowa	27.2%	2.9%	27.6%	-2.9%	3.5%	8.3%
Indiana	37.7%	10.0%	15.9%	-0.9%	6.3%	14.2%
Missouri	59.5%	26.8%	12.6%	19.6%	10.4%	8.0%
N. Hampshire	48.4%	18.7%	13.9%	9.3%	3.6%	12.8%
Utah	33.8%	4.7%	15.9%	0.2%	-1.3%	11.4%
Washington	34.2%	4.2%	17.2%	-1.1%	1.2%	11.0%
Blind/Disabled						
Arkansas	12.8%	-8.3%	11.4%	-17.6%	-5.1%	26.0%
Georgia	26.5%	0.1%	14.3%	-9.1%	-1.8%	22.6%
Iowa	42.2%	13.0%	18.4%	-0.1%	3.7%	18.0%
Indiana	56.3%	22.8%	17.7%	0.8%	1.3%	26.5%
Missouri	88.9%	48.5%	12.0%	26.9%	9.1%	21.7%
N. Hampshire	61.7%	26.1%	15.5%	-10.1%	5.5%	47.1%
Utah	58.8%	24.1%	17.6%	1.2%	-2.7%	32.0%
Washington	63.1%	25.8%	15.3%	0.8%	-0.3%	36.0%
AFDC/Poverty Adults						
Arkansas	0.3%	-17.5%	7.7%	-22.1%	-5.9%	20.4%
Georgia	29.6%	2.3%	10.4%	-20.8%	-4.3%	46.6%
Iowa	30.3%	-0.3%	12.5%	2.1%	3.3%	7.7%
Indiana	73.4%	34.4%	14.3%	-3.6%	1.9%	48.2%
Missouri	70.5%	28.4%	10.8%	20.8%	7.5%	13.0%
N. Hampshire	114.8%	62.7%	12.6%	-3.4%	-2.8%	85.7%
Utah	61.9%	24.0%	12.8%	6.0%	2.0%	26.8%
Washington	68.7%	35.4%	16.0%	10.5%	-1.4%	33.7%
AFDC/Poverty Children						
Arkansas	37.0%	17.2%	13.0%	1.2%	-4.3%	28.2%
Georgia	88.0%	51.6%	14.7%	11.1%	-2.0%	49.9%
Iowa	47.7%	19.2%	15.6%	7.0%	1.8%	16.7%
Indiana	129.7%	83.5%	17.0%	19.1%	3.6%	63.9%
Missouri	84.3%	45.8%	12.7%	9.1%	6.7%	29.6%
N. Hampshire	121.2%	76.0%	14.5%	12.2%	-4.8%	73.5%
Utah	97.4%	58.9%	15.6%	21.6%	-4.7%	43.7%
Washington	68.7%	35.4%	16.0%	10.5%	-1.4%	33.7%

Note: Independent factors will not sum across to equal total expenditure changes, due to cross-product terms

Table III.9
Number of Drug Entities and Drug Products: 1990 and 1992

# by Category	Drug Entity	Drug Entity, & Dose Form	Drug Entity, Dose Form, & Strength	Drug Entity, Dose Form, Strength, & Pkg. Size	Drug Entity, Dose Form, Strength, Pkg. Size, & Labeler	Drug Entity, Dose Form, Strength, Pkg. Size, Labeler, & NDC Number
1990						
Single Source	1,274	1,587	2,200	3,214	3,326	3,578
Innovator Multiple Source	773	1,151	1,895	3,879	4,709	5,211
Non-Innovator Multiple Source	1,201	1,805	2,835	8,378	52,487	55,882
Total Rx	2,207	3,275	5,287	12,706	60,163	64,671
Over-the-Counter	1,983	2,809	3,717	9,165	24,873	27,947
1992						
Single Source	1,394	1,747	2,472	4,452	5,690	6,073
Innovator Multiple Source	770	1,123	1,844	4,050	5,143	5,790
Non-Innovator Multiple Source	1,142	1,715	2,702	8,382	43,314	47,067
Total Rx	2,248	3,376	5,431	14,119	53,661	58,930
Over-the-Counter	2,227	3,166	4,171	10,993	28,955	34,086
Ratio to # of Drug Entities						
1990						
Single Source	1.00	1.25	1.73	2.52	2.61	2.81
Innovator Multiple Source	1.00	1.49	2.45	5.02	6.09	6.74
Non-Innovator Multiple Source	1.00	1.50	2.36	6.98	43.70	46.53
Total Rx	1.00	1.48	2.40	5.76	27.26	29.30
Over-the-Counter	1.00	1.42	1.87	4.62	12.54	14.09
1992						
Single Source	1.00	1.25	1.77	3.19	4.08	4.36
Innovator Multiple Source	1.00	1.46	2.39	5.26	6.68	7.52
Non-Innovator Multiple Source	1.00	1.50	2.37	7.34	37.93	41.21
Total Rx	1.00	1.50	2.42	6.28	23.87	26.21
Over-the-Counter	1.00	1.42	1.87	4.94	13.00	15.31

SOURCE: Compiled by the PRIME Institute, University of Minnesota based on data found in First DataBank's Master Drug Data File.

Table III.10
Growth of Repackager NDCs: 1990 to 1994
of Repackager and All NDCs

# of Repackager NDCs as of:	SS Rx Repkg. NDCs	SS Rx Orig. NDCs	All SS Rx NDCs	All Rx Repkg. NDCs	All Rx Orig. NDCs	All Rx Orig.+Repkg. NDCs
# of NDCs						
1-1-90	69	2,782	2,851	791	27,100	27,891
1-1-91	922	3,070	3,992	4,831		
1-1-92	1,323	3,520	4,843	7,065		
1-1-93	1,623	4,764	6,387	9,134		
1-1-94	2,239	5,425	7,664	12,246	40,337	52,583
11-1-94	2,822	5,709	8,531	14,947		
% of NDCs						
1-1-90	2.4%	97.6%	100.0%	2.8%	97.2%	100.0%
1-1-91	23.1%	76.9%	100.0%			
1-1-92	27.3%	72.7%	100.0%			
1-1-93	25.4%	74.6%	100.0%			
1-1-94	29.2%	70.8%	100.0%	23.3%	76.7%	100.0%
11-1-94	33.1%	66.9%	100.0%			
Change in # of NDCs						
90-91	853	288	1,141	4,040		
91-92	401	450	851	2,234		
92-93	300	1,244	1,544	2,069		
93-94	616	661	1,277	3,112		
93-Nov.94	583	284	867	2,701		

SOURCE: Compiled by the PRIME Institute, University of Minnesota from data found in MediSpan's PriceChek PC.

Table III.11a
Formulary Restrictiveness Index for Medicaid: 1990 & 1992
All NDCs

	SS # of NDC's	IMS # of NDC's	NMS # of NDC's	OTC # of NDC's	Total # of NDC's (unweighted)	SS+IMS # of NDC's	Rx # of NDC's	Total # of NDC's
						(weighted average indices)		
1990								
Formulary Restrictiveness Index (FRI= 1+(1-% NDCs reimbursed))								
Arkansas	49	25	19	75	37	46	40	43
Georgia	60	66	58	99	71	61	60	64
Indiana	2	3	5	7	6	2	3	3
Iowa	2	2	5	68	24	2	2	9
Kansas	22	5	5	11	8	20	17	16
Missouri	73	53	44	92	60	70	65	67
New Hampshire	2	1	3	1	2	2	2	2
Utah	2	3	6	75	26	2	3	10
Washington	49	30	25	77	42	46	42	45
1992								
Formulary Restrictiveness Index (FRI= 1+(1-% NDCs reimbursed))								
Arkansas	41	33	33	87	54	40	39	43
Georgia	44	37	35	96	58	43	41	47
Indiana	36	30	30	53	39	35	34	36
Iowa	36	29	29	86	51	35	34	39
Kansas	39	30	29	62	42	38	36	39
Missouri	40	31	30	57	41	39	37	39
New Hampshire	36	29	29	50	37	35	34	35
Utah	37	30	30	86	51	36	35	40
Washington	60	45	40	80	57	58	54	57
Change in Formulary Restrictiveness Index (1992 - 1990)								
Arkansas	-8	9	15	12	16	-5	-1	0
Georgia	-16	-28	-23	-4	-13	-18	-19	-17
Indiana	34	27	24	45	33	33	31	33
Iowa	35	27	25	18	27	33	32	30
Kansas	17	25	24	52	35	18	19	23
Missouri	-33	-22	-14	-35	-19	-31	-28	-28
New Hampshire	34	28	26	49	35	33	32	33
Utah	36	27	24	11	25	34	32	30
Washington	11	16	15	3	15	12	13	12

SOURCE: Calculated by PRIME Institute, University of Minnesota based on formulary and coverage indicators in First DataBank's Medicaid Data File.
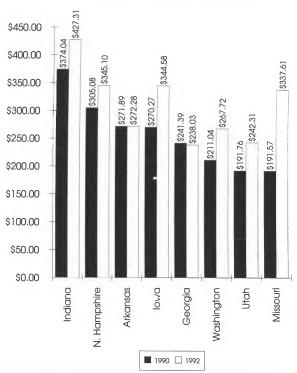
Table III.11b

Formulary Restrictiveness Index for Medicaid: 1990 & 1992
All NDCs Adjusted for OBRA 90 Exlcusions

	SS # of NDC's	IMS # of NDC's	NMS # of NDC's	OTC # of NDC's	Total # of NDC's (unweighted)	SS+IMS # of NDC's	Rx # of NDC's	Total # of NDC's
						(weighted average indices)		
1990								
Formulary Restrictiveness Index (FRI= 1+(1-% NDCs reimbursed))								
Arkansas	49	25	19	75	37	46	40	43
Georgia	60	66	58	99	71	61	60	64
Indiana	2	3	5	7	6	2	3	3
Iowa	2	2	5	68	24	2	2	9
Kansas	22	5	5	11	8	20	17	16
Missouri	73	53	44	92	60	70	65	67
New Hampshire	2	1	3	1	2	2	2	2
Utah	2	3	6	75	26	2	3	10
Washington	49	30	25	77	42	46	42	45
1992								
Formulary Restrictiveness Index (FRI= 1+(1-% NDCs reimbursed))								
Arkansas	11	3	3	57	24	10	9	13
Georgia	14	7	5	66	28	13	11	17
Indiana	6	0	0	23	9	5	4	6
Iowa	6	-1	-1	56	21	5	4	9
Kansas	9	0	-1	32	12	8	6	9
Missouri	10	1	0	27	11	9	7	9
New Hampshire	6	-1	-1	20	7	5	4	5
Utah	7	0	0	56	21	6	5	10
Washington	30	15	10	50	27	28	24	27
OBRA 90 adjustment								
	30	30	30	30	30	30	30	30
Change In Formulary Restrictiveness Index (1992 - 1990)								
Arkansas	-38	-21	-15	-18	-14	-35	-31	-30
Georgia	-46	-58	-53	-34	-43	-48	-49	-47
Indiana	4	-3	-6	15	3	3	1	3
Iowa	5	-3	-5	-12	-3	3	2	0
Kansas	-13	-5	-6	22	5	-12	-11	-7
Missouri	-63	-52	-44	-65	-49	-61	-58	-58
New Hampshire	4	-2	-4	19	5	3	2	3
Utah	6	-3	-6	-19	-5	4	2	0
Washington	-19	-14	-15	-27	-15	-18	-17	-18

SOURCE: Calculated by PRIME Institute, University of Minnesota based on formulary and coverage indicators in First DataBank's Medicaid Data File.
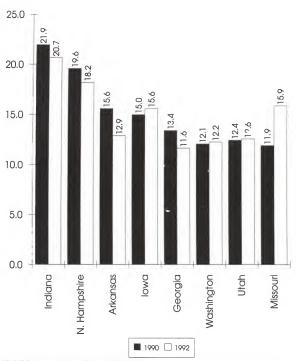
**Figure III.1
Annual Medicaid Drug Expenditure
Per Enrollee Per Year: 1990 and 1992**

SOURCE: Estimate based on MSIS personal file and Claims-OT data for 6 month time period in each year extrapolated to one year expenditure per enrollee.

Figure III.2
Annual Medicaid Prescriptions per Drug Recipient:
1990 and 1992

SOURCE: Estimate based on MSIS personal file and Claims-OT data for 6 month time period in each year extrapolated to one year utilization per enrollee.
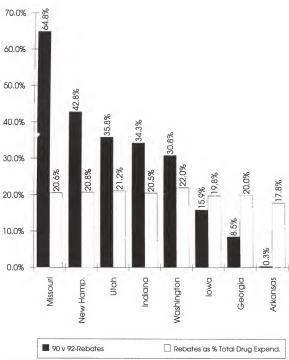
Figure III.3
Arkansas Medicaid Prescriptions per
Drug Recipient per Year: 1988 to 1993

SOURCE: Compiled by the PRIME Institute from data found in Pharmaceutical Benefits Under State Medical Assistance Programs (Reston, VA, National Pharmaceutical Council, annual reports 1988 to 1994).

**Figure III.4 Change in
Medicaid Drug Expenditures 1990 to 1992 vs.
Rebates as % of Drug Expenditures**

Legend: ■ 90 v 92-Rebates   □ Rebates as % Total Drug Expend.

SOURCE: Estimate based on MSIS personal file and Claims-OT data for 6 month time period in each year
extrapolated to one year expenditure level.

Figure III.5
Change in Medicaid Drug Expenditures:
1990 vs. 1992 with Rebate & Enrollment Adjustment

Legend:
- ■ 90 vs. 92
- □ 90 vs. 92-Rebates
- ■ 90 vs. 92-Rebates & Enroll. Adjust.

Data values by state:

State	90 vs. 92	90 vs. 92-Rebates	90 vs. 92-Rebates & Enroll. Adjust.
Missouri	107.6%	64.8%	42.9%
New Hamp.	80.2%	42.8%	6.9%
Utah	72.3%	35.8%	6.5%
Indiana	69.0%	34.3%	5.2%
Washington	67.8%	30.8%	3.9%
Iowa	44.6%	15.9%	3.1%
Georgia	35.6%	8.5%	-11.4%
Arkansas	22.1%	0.3%	-12.8%

SOURCE: Estimate based on MSIS personal file and Claims-OT data for 6 month time period in each year extrapolated to one year expenditure level.

Figure III.6
Change in Medicaid Drug Expenditures &
Rebate Payments: 1990 and 1992
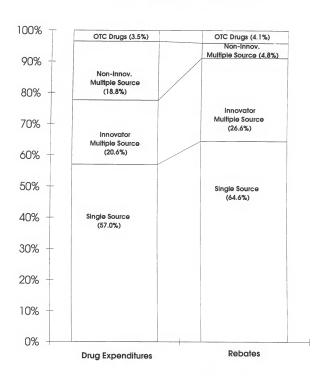
Payments (in $1,000s)

State	1990 to 1992 Total Change in Expenditure	Rebates Accrued
Missouri	$10,317	$6,935
Washington	$7,039	$11,049
Indiana	$6,983	$13,479
Iowa	$2,898	$6,810
Utah	$1,231	$1,982
N. Hampshire	$1,025	$1,509
Arkansas	$429	$5,273
Georgia	$414	$7,430

■ 1990 to 1992 Total Change in Expenditure   □ Rebates Accrued

SOURCE: Estimate based on MSIS personal file and Claims-OT data for 6 month time period in 1990 and 1992.

Figure III.7
Annual Medicaid Drug Expenditure
Per Aged Enrollee: 1990 to 1992

State	1990	1992
Indiana	$1,067.91	$1,323.31
New Hamp.	$780.37	$1,052.11
Iowa	$762.05	$943.65
Utah	$652.91	$838.99
Washington	$642.67	$817.68
Georgia	$603.08	$670.35
Missouri	$558.6	$946.30
Arkansas	$539.39	$566.39

■ 1990 □ 1992

SOURCE: Estimate based on MSIS personal file and Claims-OT data for 6 month time period in each year extrapolated to one year expenditure per enrollee.
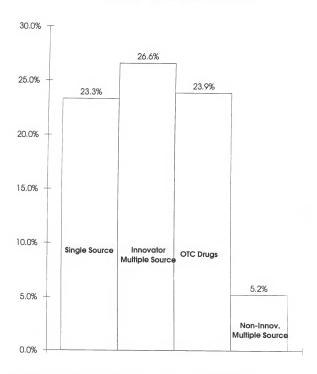
Figure III.8
Percent Distribution of Missouri Drug Expenditures
and Rebates By Drug Patent Status: 1992
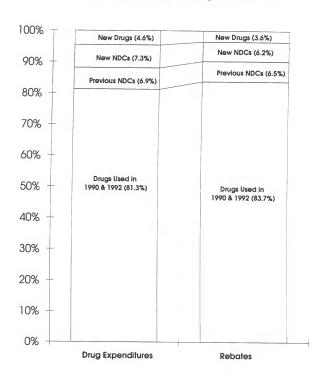
SOURCE: Estimate based on MSIS personal file and Claims-OT data for 6 month time period in 1992.

Figure III.9
Rebates as a % of Medicaid Drug Expenditures
by Patent Status : Missouri - 1992

SOURCE: Estimate based on MSIS personal file and Claims-OT data for 6 month time period in 1992.

Figure III.10
Percent Distribution of Medicaid Drug Expenditures
and Rebates By Type of Drug: Missouri - 1992

SOURCE: Estimate based on MSIS personal file and Claims-OT data for 6 month time period in 1992.

Figure III.11
Arkansas 1992:
Therapeutic Category as % of Drug Expenditures

Therapeutic Category	%
H2 Antagonists & other GI	10.5%
Calcium channel blockers	8.3%
Hypotensives	7.6%
Anti-psychotic drugs	4.3%
Anti-asthmatics	4.2%
Cephalosporins, oral	4.0%
Anti-infectives, other oral	3.6%
Anti-convulsants	3.5%
Anti-arthritics	3.2%
Diuretics	3.2%
Anti-depressants	2.6%
Skin preparations	2.5%
Penicillins, oral	2.4%
Hypoglycemics, oral	2.3%
Hormones, other	2.2%
Electrolyte, caloric & fluid replacement	2.2%
EENT preparations	2.2%
Analgesics, other	2.2%
Blood-related products	2.1%
Anti-anxiety drugs	2.1%
Miscellaneous other products	2.0%
Other ulcer-related	1.8%
Insulins	1.7%
Anti-hyperlipidemic agents	1.6%
Anti-neoplastics	1.6%
Analgesics, narcotic	1.6%
Anti-parkinsonism drugs	1.4%
Quinolones, oral	1.3%
Cardiovasculars, other	1.1%
Anti-infectives, other non-oral	1.1%
Anti-arrhythmics	1.1%
Vasodilators	1.0%
Contraceptives, other	1.0%
Cough and cold preparations	1.0%
Muscle relaxants	0.9%
Estrogenic agents	0.7%
Glucocorticoids	0.7%
Anti-fungals	0.6%
Anti-coagulants	0.5%
Psychotherapeutic drugs, other	0.5%
Thyroid preparations	0.5%
Pre-natal vitamins	0.4%
Anti-histamines	0.3%
Sedatives and hypnotics	0.2%
Antacids	0.1%
Vitamins, all other	0.1%
Biologicals	0.1%
Contraceptives, oral	0.0%

0.0% 2.0% 4.0% 6.0% 8.0% 10.0% 12.0%

SOURCE: Estimate based on MSIS personal file and Claims-OT data for 6 month time period in each year extrapolated to one year expenditure level in 1992.

Figure III.12
Missouri 1992:
Therapeutic Category as % of Drug Expenditures

Category	%
H2 Antagonists & other GI	11.2%
Calcium channel blockers	6.4%
Anti-arthritics	5.3%
Hypotensives	5.0%
Anti-asthmatics	4.4%
Cephalosporins, oral	4.0%
Anti-psychotic drugs	3.9%
Anti-depressants	3.7%
Anti-convulsants	3.4%
Anti-anxiety drugs	3.0%
Skin preparations	2.9%
Anti-infectives, other oral	2.6%
Electrolyte, caloric & fluid replacement	2.4%
Penicillins, oral	2.3%
Other ulcer-related	2.2%
Blood-related products	2.1%
Vasodilators	2.0%
Anti-histamines	2.0%
Diuretics	1.9%
Analgesics, other	1.9%
Quinolones, oral	1.8%
Miscellaneous other products	1.7%
EENT preparations	1.7%
Anti-neoplastics	1.7%
Hypoglycemics, oral	1.6%
Contraceptives, oral	1.5%
Harmones, other	1.5%
Insulins	1.5%
Cough and cold preparations	1.4%
Anti-parkinsonism drugs	1.4%
Analgesics, narcotic	1.4%
Anti-hyperlipidemic agents	1.4%
Anti-infectives, other non-oral	1.0%
Cardiovasculars, other	0.9%
Glucocorticoids	0.8%
Anti-fungals	0.7%
Contraceptives, other	0.7%
Anti-coagulants	0.6%
Muscle relaxants	0.6%
Sedatives and hypnotics	0.6%
Estrogenic agents	0.5%
Anti-arrhythmics	0.5%
Psychotherapeutic drugs, other	0.5%
Thyroid preparations	0.4%
Vitamins, all other	0.3%
Pre-natal vitamins	0.3%
Biologicals	0.1%
Antacids	0.1%

0.0% 2.0% 4.0% 6.0% 8.0% 10.0% 12.0%

SOURCE: Estimate based on MSIS personal file and Claims-OT data for 6 month time period in each year extrapolated to one year expenditure level in 1992.
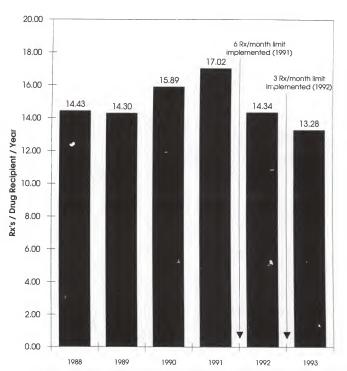
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Figure III.13
Arkansas 1990 to 1992:
% Change in Drug Expenditures

Category	% Change
Blood-related products	122.4%
Psychotherapeutic drugs, other	94.4%
Muscle relaxants	80.5%
Anti-hyperlipidemic agents	73.6%
Estrogenic agents	70.7%
Anti-coagulants	65.5%
Calcium channel blockers	60.9%
Anti-neoplastics	57.9%
Anti-convulsants	57.1%
Glucocorticoids	56.7%
Anti-fungals	54.5%
Skin preparations	41.3%
Thyroid preparations	40.8%
Anti-asthmatics	39.3%
Anti-infectives, other oral	35.1%
Hormones, other	33.8%
Anti-parkinsonism drugs	33.6%
Hypoglycemics, oral	33.3%
Anti-psychotic drugs	32.6%
Other ulcer-related	31.4%
EENT preparations	28.9%
Analgesics, narcotic	26.5%
Electrolyte, caloric & fluid replacement	22.6%
Anti-infectives, other non-oral	19.7%
Penicillins, oral	19.5%
Hypotensives	19.0%
Vitamins, all other	18.3%
Anti-arthritics	16.7%
Miscellaneous other products	16.5%
Anti-histamines	14.0%
Anti-depressants	10.9%
Cephalosporins, oral	10.1%
Contraceptives, other	0.0%
Contraceptives, oral	0.0%
Sedatives and hypnotics	-0.1%
H2 Antagonists & other GI	-0.5%
Diuretics	-1.9%
Analgesics, other	-3.8%
Anti-arrhythmics	-5.4%
Insulins	-5.8%
Cardiovasculars, other	-7.7%
Pre-natal vitamins	-9.2%
Vasodilators	-9.5%
Anti-anxiety drugs	-9.8%
Cough and cold preparations	-17.9%
Quinolones, oral	-20.7%
Biologicals	-45.9%
Antacids	-63.4%

-80.0% -60.0% -40.0% -20.0% 0.0% 20.0% 40.0% 60.0% 80.0% 100.0% 120.0% 140.0%

SOURCE: Estimate based on MSIS personal file and Claims-OT data for 6 month time period in each year extrapolated to one year expenditure level in 1990 and 1992.

Figure III.14
Missouri 1990 to 1992:
% Change in Drug Expenditures

Drug	% Change
Anti-anxiety drugs	926%
Biologicals	898%
Analgesics, other	717%
Blood-related products	464%
Vitamins, all other	402%
Anti-fungals	266%
Anti-histamines	233%
Cough and cold preparations	233%
Psychotherapeutic drugs, other	227%
Glucocorticoids	227%
Estrogenic agents	205%
Anti-neoplastics	182%
Skin preparations	181%
Anti-infectives, other non-oral	181%
Anti-arthritics	158%
Anti-depressants	156%
Anti-hyperlipidemic agents	153%
Anti-infectives, other oral	146%
Other ulcer-related	135%
Anti-coagulants	131%
Hormones, other	126%
Thyroid preparations	122%
EENT preparations	117%
Muscle relaxants	116%
Anti-psychatic drugs	109%
Electrolyte, caloric & fluid replacement	105%
Analgesics, narcotic	104%
Anti-convulsants	103%
Pre-natal vitamins	99%
H2 Antagonists & other GI	95%
Anti-arrthymics	93%
Quinolones, oral	80%
Anti-parkinsonism drugs	78%
Miscellaneous other products	68%
Hypotensives	67%
Hypoglycemics, oral	65%
Anti-asthmatics	64%
Cephalosporins, oral	63%
Calcium channel blockers	60%
Penicillins, oral	52%
Insulins	45%
Vasodilators	41%
Cardiovasculars, other	34%
Diuretics	33%
Contraceptives, oral	33%
Sedatives and hypnotics	14%
Antacids	0%
Contraceptives, other	0%

0%   100% 200% 300% 400% 500% 600% 700% 800% 900% 1000%

SOURCE: Estimate based on MSIS personal file and Claims-OT data for 6 month time period in each year extrapolated to one year expenditure level.
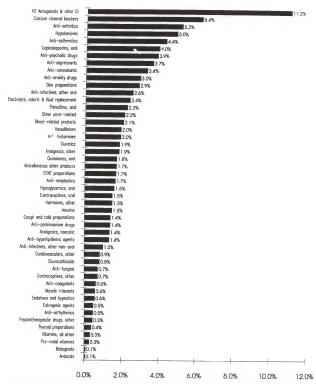
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Figure III.15
Arkansas 1990 to 1992:
% Change in Drug Expenditures After Rebates

Category	% Change
Blood-related products	95.7%
Psychotherapeutic drugs, other	72.1%
Muscle relaxants	62.0%
Anti-hyperlipidemic agents	51.3%
Anti-coagulants	44.2%
Thyroid preparations	34.5%
Calcium channel blockers	34.2%
Anti-neoplastics	32.3%
Anti-fungals	29.0%
Anti-convulsants	28.2%
Glucocorticoids	20.3%
Anti-infectives, other oral	19.4%
Anti-parkinsonism drugs	17.8%
Analgesics, narcotic	17.1%
Estrogenic agents	14.8%
Penicillins, oral	11.1%
Other ulcer-related	10.7%
Skin preparations	9.2%
Anti-arthritics	9.0%
Anti-psychotic drugs	8.0%
Hormones, other	7.9%
Anti-histamines	7.0%
Vitamins, all other	4.8%
Hypoglycemics, oral	1.4%
Total Expenditures	0.3%
Contraceptives, other	0.0%
Contraceptives, oral	0.0%
EENT preparations	-1.1%
Anti-asthmatics	-1.1%
Electrolyte, caloric & fluid replacement	-1.9%
Sedatives and hypnotics	-2.9%
Hypotensives	-3.8%
Cephalosporins, oral	-7.2%
Anti-depressants	-7.8%
Anti-infectives, other non-oral	-8.5%
Analgesics, other	-8.5%
Pre-natal vitamins	-11.2%
Miscellaneous other products	-17.7%
Diuretics	-18.2%
Cough and cold preparations	-20.6%
Anti-anxiety drugs	-20.7%
Vasodilators	-21.2%
Cardiovasculars, other	-22.1%
H2 Antagonists & other GI	-23.1%
Anti-arrhythmics	-30.1%
Quinolones, oral	-40.1%
Insulins	-47.3%
Biologicals	-48.8%

-60.0% -40.0% -20.0% 0.0% 20.0% 40.0% 60.0% 80.0% 100.0%

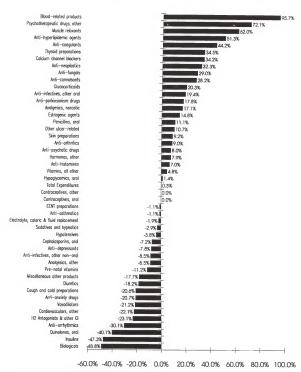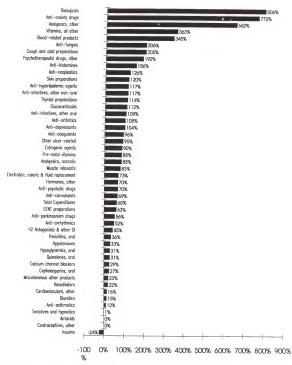SOURCE: Estimate based on MSIS personal file and Claims-OT data for 6 month time period in each year extrapolated to one year expenditure level.

Figure III.16
Missouri 1990 to 1992:
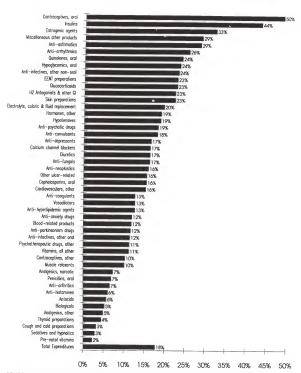## % Change in Drug Expenditures After Rebates

Category	% Change
Biologicals	806%
Anti-anxiety drugs	772%
Analgesics, other	662%
Vitamins, all other	363%
Blood-related products	345%
Anti-fungals	206%
Cough and cold preparations	205%
Psychotherapeutic drugs, other	192%
Anti-histamines	156%
Anti-neoplastics	126%
Skin preparations	120%
Anti-hyperlipidemic agents	117%
Anti-infectives, other non-oral	117%
Thyroid preparations	114%
Glucocorticoids	112%
Anti-infectives, other oral	109%
Anti-arthritics	105%
Anti-depressants	104%
Anti-coagulants	96%
Other ulcer-related	95%
Estrogenic agents	90%
Pre-natal vitamins	88%
Analgesics, narcotic	88%
Muscle relaxants	83%
Electrolyte, caloric & fluid replacement	73%
Hormones, other	70%
Anti-psychotic drugs	70%
Anti-convulsants	69%
Total Expenditures	65%
EENT preparations	63%
Anti-parkinsonism drugs	56%
Anti-arrhythmics	52%
H2 Antagonists & other GI	45%
Penicillins, oral	36%
Hypotensives	33%
Hypoglycemics, oral	31%
Quinolones, oral	31%
Calcium channel blockers	29%
Cephalosporins, oral	27%
Miscellaneous other products	23%
Vasodilators	22%
Cardiovasculars, other	16%
Diuretics	15%
Anti-asthmatics	12%
Sedatives and hypnotics	1%
Antacids	0%
Contraceptives, other	0%
Insulins	-24%

-100   0%   100% 200% 300% 400% 500% 600% 700% 800% 900%
%

SOURCE: Estimate based on MSIS personal file and Claims-OT data for 6 month time period in each year
extrapolated to one year expenditure level.

Figure III.17
Arkansas 1992:
Rebate Amount as a % of Total Expenditures:

Category	Percentage
Contraceptives, oral	50%
Insulins	44%
Estrogenic agents	33%
Miscellaneous other products	29%
Anti-asthmatics	29%
Anti-arrhythmics	26%
Quinolones, oral	24%
Hypoglycemics, oral	24%
Anti-infectives, other non-oral	24%
EENT preparations	23%
Glucocorticoids	23%
H2 Antagonists & other GI	23%
Skin preparations	23%
Electrolyte, caloric & fluid replacement	20%
Hormones, other	19%
Hypotensives	19%
Anti-psychotic drugs	19%
Anti-convulsants	18%
Anti-depressants	17%
Calcium channel blockers	17%
Diuretics	17%
Anti-fungals	17%
Anti-neoplastics	16%
Other ulcer-related	16%
Cephalosporins, oral	16%
Cardiovasculars, other	16%
Anti-coagulants	13%
Vasodilators	13%
Anti-hyperlipidemic agents	13%
Anti-anxiety drugs	12%
Blood-related products	12%
Anti-parkinsonism drugs	12%
Anti-infectives, other oral	12%
Psychotherapeutic drugs, other	11%
Vitamins, all other	11%
Contraceptives, other	10%
Muscle relaxants	10%
Analgesics, narcotic	7%
Penicillins, oral	7%
Anti-arthritics	7%
Anti-histamines	6%
Antacids	6%
Biologicals	5%
Analgesics, other	5%
Thyroid preparations	4%
Cough and cold preparations	3%
Sedatives and hypnotics	3%
Pre-natal vitamins	2%
Total Expenditures	18%

0%   5%   10%   15%   20%   25%   30%   35%   40%   45%   50%

SOURCE: Estimate based on MSIS personal file and Claims-OT data for 6 month time period in each year extrapolated to one year expenditure level.

Figure III.18
Missouri 1992:
Rebate Amount as a % of Total Expenditures:

Category	Percent
Insulins	47%
Contraceptives, oral	46%
Estrogenic agents	38%
Glucocorticoids	35%
Anti-asthmatics	32%
Quinolones, oral	27%
Miscellaneous other products	27%
H2 Antagonists & other GI	26%
EENT preparations	25%
Hormones, other	25%
Anti-histamines	23%
Anti-infectives, other non-oral	23%
Cephalosporins, oral	22%
Skin preparations	22%
Anti-arrhythmics	21%
Blood-related products	21%
Anti-arthritics	21%
Hypoglycemics, oral	21%
Hypotensives	21%
Anti-depressants	20%
Anti-neoplastics	20%
Calcium channel blockers	20%
Anti-psychotic drugs	18%
Anti-convulsants	17%
Other ulcer-related	17%
Anti-fungals	16%
Electrolyte, caloric & fluid replacement	16%
Muscle relaxants	15%
Anti-infectives, other oral	15%
Anti-anxiety drugs	15%
Anti-coagulants	15%
Anti-hyperlipidemic agents	14%
Cardiovasculars, other	14%
Diuretics	14%
Vasodilators	13%
Anti-parkinsonism drugs	13%
Contraceptives, other	12%
Sedatives and hypnotics	12%
Psychotherapeutic drugs, other	11%
Penicillins, oral	10%
Biologicals	9%
Cough and cold preparations	8%
Vitamins, all other	8%
Analgesics, narcotic	8%
Analgesics, other	7%
Pre-natal vitamins	5%
Antacids	5%
Thyroid preparations	3%
Total Expenditures	21%

0%   5%   10%   15%   20%   25%   30%   35%   40%   45%   50%

SOURCE: Estimate based on MSIS personal file and Claims-OT data for 6 month time period in each year extrapolated to one year expenditure level.

**Figure III.19
Number of Marketed
Prescription Pharmaceutical Products in 1992**

Figure III.20
Medicaid Coverage Restrictiveness Index
From 1990 to 1992 for Selected States: All NDCs
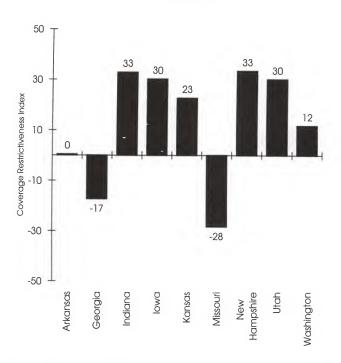
* A score of 1 indicates all drugs (NDCs) covered and a score of 100 indicates no drugs (NDCs) covered.

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Figure III.21
Medicaid Coverage Restrictiveness Index
Change from 1990 to 1992 for Selected States:
All NDCs
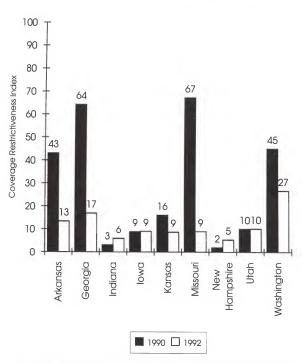
* Negative scores indicate less restrictive coverage in 1992 than in 1990 and positive scores indicate more restrictive coverage.

Figure III.22
Medicaid Coverage Restrictiveness Index from 1990 to 1992 for Selected States: All NDCs Adjusted for OBRA 90 Exclusions
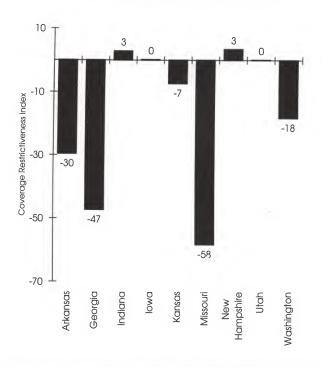
* A score of 1 indicates all drugs (NDCs) covered and a score of 100 indicates no drugs (NDCs) covered.

Figure III.23
Medicaid Coverage Restrictiveness Index
Change from 1990 to 1992 for Selected States:
All NDCs Adjusted for OBRA 90 Exclusions

* Negative scores indicate less restrictive coverage in 1992 than in 1990 and positive scores indicate more restrictive cov

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CHAPTER IV.

ADMINISTRATIVE IMPACT OF THE

REBATE PROGRAM ON MEDICAID AGENCIES

IV.A. Introduction

The drug rebate program was an incremental policy change superimposed upon existing state drug benefit policies. As such, the manner in which the program was integrated into agencies varied, dependent on state Medicaid program organizational characteristics. In this chapter the implementation experience of selected states with the rebate program is described. Difficulties experienced with the program and factors favorable for implementation were identified. Also, estimates of the cost of implementation and operation of the drug rebate program were developed.

The impact of the rebate program and related aspects of OBRA 90 contained in Section 4401 was expected to be greater for some states than for others. The major components of OBRA 90 that influenced state outpatient prescription drug benefit programs were:

* Participation by manufacturers in the Medicaid drug rebate program required in order for states to receive federal matching funds for their respective drug products;

* Prohibition of state Medicaid program use of restrictive formularies for drug products, with the exception of non-rebated products and certain specified categories of drug products, such as fertility drugs or nonprescription drugs, that could be excluded according to statute;

* Provision for rebate computation to be related to the type of drug product, i.e., single source, innovator multiple source, or non-innovator multiple source (generic) drug.

* Single source and innovator multiple source products incur additional rebates when the price increase exceeds the increase in the CPI-U for each quarter.

* Requirement for states to cover new drugs for a period of at least six months once approved by the Food and Drug Administration;

* Establishment of a moratorium on reductions to reimbursement formulas used by states to pay for prescribed drug products, from January 1, 1991, through December 31, 1994; and

* Requirement for states to develop drug use review programs by January 1, 1993, for covered outpatient drugs.

States that previously had restrictive formularies, mandated by OBRA 90 to be discontinued, would experience a greater change in policy and correspondingly a larger administrative task than ones that simply needed to develop a mechanism for invoicing and receiving rebates from manufacturers. In Exhibit IV.1, all states are described in terms of their key drug benefit policy characteristics, including existence of formularies prior to OBRA 90, "early" development of a prescription drug utilization review program (by 1991), and expenditures for outpatient prescription drugs in total and per Medicaid drug recipient during 1990. States are also identified by rank order in terms of total Medicaid expenditures in 1990, and their 1990 outpatient prescription drug benefit expenditures (using HCFA 2082 data) as a percentage of total Medicaid expenditures computed. The majority of states had outpatient prescription drug expenditures of between 6% and 10% of total Medicaid payments for services during 1990, as evident in Exhibit IV.1. These outpatient drug expenditures included most prescriptions of nursing home residents, but excluded drugs used by hospital inpatients.

A number of factors are likely to contribute to states' variation in drug expenditures as a percentage of total Medicaid expenditures. In addition to differences in drug utilization and coverage restrictions from state to state, other factors can affect the ratios. Since each state makes some decisions regarding how comprehensive the Medicaid benefit package is for non-drug as well as for drug services, some states will include a larger number of optional services than others. In these more "generous" states, drug expenditures as a percentage of total expenditures may, therefore, appear smaller than in other states with less comprehensive benefit packages. Additionally, a number of states have instituted managed care plans for certain beneficiaries, and some of the managed care plans include prescription drugs in the capitation rate. Such states would appear to have fewer drug recipients and expenditures reported, since the outpatient drug claims system may not record drug utilization for persons in capitated plans. Finally, each state has differences in terms of the mix of beneficiary types covered; states with larger proportions of elderly and disabled, which have high drug utilization profiles, would be expected to have high drug costs per capita.

Exhibit IV.1 also identifies states that participated in the HCFA Medicaid Statistical Information System (MSIS), and whether the state was included in the outpatient drug claims data analyses (MSIS Study State) described in an earlier chapter. For several reasons, the group of states chosen for the administrative impact analyses does not entirely duplicate those that underwent extensive claims data analysis. First, states able to pass the stringent edits of drug claims data needed for inclusion in the case study analysis were not likely to be typical of the range of state administrative characteristics. Also, the MSIS states are predominantly small to moderate in size, and one or two large states were desirable to be included for the administrative impact study. Major criteria established for selecting a range of states to be included in the data collection for the administrative impact study were:

1. Magnitude of state Medicaid program expenditures;
2. State policy characteristics, including status of drug benefit restrictions before and after OBRA 90;
3. MSIS study as well as non-study states;
4. Drug claims processing operated by outside contractors vs. in-house;
5. Existence of some capitation programs for Medicaid beneficiaries.

Based on these criteria, the following states were selected for inclusion in this portion of the evaluation:

States for Interviews in Person during Site Visits
1. Missouri*
2. Pennsylvania
3. Utah*

States for Interviews by Telephone
1. Arkansas*
2. California
3. Georgia*
4. Iowa*
5. Kansas*
6. North Carolina
7. Nebraska
8. Ohio
9. Vermont

States denoted by the '' were also included in the state case study analysis.

The states selected for interviews ranged in Medicaid program size, ranked by total Medicaid claims expenditures for all services, from #2 (California) to #46 (Vermont), providing a good range in terms of these expenditures. The selection process was a non-random one, and thus, caution should be exercised in attempts to generalize the findings to all states.

The three states selected for site visits were interviewed during April and May of 1994, and telephone interviews with the other nine states were conducted during July and August of 1994. Structured interview protocols were used in all cases and are presented in Appendix IV.A. Medicaid program staff were also encouraged to raise any issues relevant to implementing and operating the program that were important but not addressed by the specific questions. Additionally, cost data collection forms were developed and delivered to each of the states participating in the telephone interviews, in order to facilitate the collection of cost data. Care was taken to include in the documentation of interviews only information provided by those interviewed, rather than subjective impressions of the interviewers. In most states, the needed information was provided by Medicaid outpatient drug benefit program managers. In a few states, this information was augmented as needed by discussions with state Medicaid directors, financial managers, or contractual claims processors.

The remainder of this chapter focuses on the findings developed from the interviews, along with the cost data collected directly from states. Section IV.B. describes the general changes that Medicaid programs and HCFA made in order to implement the program; Section IV.C. describes the range of pre-OBRA 90 pharmacy benefit cost management programs and changes made to these as a result of OBRA 90; Section IV.D. describes the policy issues encountered and implementation approaches of the states; and Section IV.E. describes the administrative costs of the rebate program.

IV.B. Overall Changes Related to
Implementation of the Drug Rebate Program

IV.B.1. Implementation of Rebate Mechanisms

From the states' perspective, only a few administrative system changes were needed to begin operation of the rebate program. The following administrative systems were generally addressed in order to begin program operations:

a. A mechanism to extract paid outpatient drug claims from Medicaid statistical files on a quarterly basis;

b. Computation of rebates due for each NDC and manufacturer, using the number of units of drugs utilized as reported in step (1), and the HCFA-provided unit rebate amounts (URAs);

c. An invoicing form and process for submitting invoices to manufacturers on a quarterly basis;

d. A tracking system for rebate payments received, including possible "flagging" of late or incomplete payments from manufacturers;

e. A mechanism for dealing with uncollected rebate revenues, including identification and correction of errors (the "dispute resolution" process);

f. Changes to the drug payment reference file indicating the NDCs that were covered for payment and eligible for federal participation under the rebate program. Some states also needed to change the payment file in order to remove formulary restrictions, and a few needed to convert previously state-specific drug coding systems to universal NDC codes.

g. Changes made in prescription drug coverage policy and other factors relevant to providers needed to be communicated to the pharmacists and prescribing practitioners in the state.

States experienced various degrees of success in completing these tasks. Those interviewed reported minor barriers to completing the first three steps, in terms of establishing methods to compute rebates due and to develop invoices. A barrier mentioned related to these initial tasks was the presence of delays in obtaining needed rebate data from HCFA, including quarterly data files on rebate amounts to be applied. HCFA, in turn, reported that manufacturers were often slow in reporting the quarterly pricing data needed to develop these data files. Step four, the development of a tracking

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system for manufacturer payments, was problematic for several states. The tracking system appeared to be an afterthought among several states interviewed; it was not always readily apparent whose responsibility it was to track rebate payments received and not received from each of the manufacturers and perform account reconciliation. Some states reported they had difficulty relating payments received to the invoices that had been sent. While states often designed seemingly effective systems for tracking payments on an NDC-specific and manufacturer-specific basis, their staff also complained that not all manufacturers sent explanations of partial payments, or even reference to invoice numbers. Thus, sometimes "bare checks" arrived from manufacturers so that it was unclear toward which quarterly invoice they should be allocated. The practice of aging accounts receivable, usually a straightforward accounting process, was simply not feasible for several Medicaid agencies interviewed.

All states reported that the most difficult part of implementing the rebate program was the "dispute" resolution process. Some states interviewed were still modifying their processes and procedures, at the time of the interviews, in order to address this aspect of the rebate process. Others had resigned themselves to being unable to follow up on all the unpaid rebates, since approaching 100% collection of rebates would have taken staff time that simply was not available. The perspective commonly held by states interviewed was that neither the Medicaid agency nor the manufacturers were entirely at fault for problems that arose in this area, but that trying to come to resolution was very difficult. At first, the majority of billing problems were reported as related to drug "units" (e.g., milliliters of liquid versus milligrams of soluble powder) provided by manufacturers to HCFA that did not agree with the types of units commonly used by Medicaid programs for payment. Thus, these units ultimately needed to be translated at either HCFA or the state level to match state payment systems. Fortunately, this issue became evident fairly early in the program, although not until after the first invoices were sent to manufacturers. Steps have reportedly been taken toward its resolution. Unfortunately, rebate utilization data for 1991 remain largely unedited for some states, complicating analyses of historical drug program utilization. Some of the states interviewed were hesitant to say that data on 1991 rebate

amounts billed were those actually payable by manufacturers. The MSIS data analysis (described earlier) avoided this known problem by analyzing changes in utilization from 1990 to 1992, omitting 1991.

Other problems mentioned regarding reconciling rebate amounts related to: (1) claims billing problems with pharmacies that are not detected by system edits, including differing use of unit types by pharmacies; (2) manufacturers' attempts to verify Medicaid utilization data using non-Medicaid specific proprietary data sources; and (3) drug coding errors made as prescriptions are filled. A manufacturer would typically attempt to verify Medicaid utilization figures using their own records on product sales to wholesalers in a state, or according to surveys of pharmacies carried out by third parties, but that were not comprehensive in scope. Some of the problems mentioned with such data sources were:

* Pharmacies may purchase drugs from out-of-state wholesalers or have their own out-of-state warehouses, then sell prescriptions to in-state Medicaid recipients;
* Manufacturers who use their in-state wholesaler data multiplied by the aggregate Medicaid market share in a state would not adequately reflect the variation for specific product market shares;
* Nursing homes may purchase prescription drugs from out-of-state pharmacies;
* Surveys of pharmacies conducted by proprietary sources typically do not included pharmacies that specialize in nursing home prescriptions, and so may underestimate these sales.

All states described the process of identifying and resolving the utilization level issues as quite time-consuming. Systems to extract and review pharmacy claims on an NDC-specific or pharmacy-specific basis were not available or readily accessible in all states interviewed. Often, this type of data request had to be handled after other more urgent administrative tasks. Although the majority of the state staff indicated that their state utilization review systems could generate such reports, workloads and contracts for the MMIS were often such that the prescription drug utilization reports were not a priority.

IV.B.2. Timing for Development of the Program Nationally

The period of time allotted to development of the rebate program was quite brief. A basic

timetable for actual nationwide development of the rebate program was as follows:

Late October, 1990	OBRA 90 Legislation passed in both the House and Senate.
November 5, 1990	Statute enacted as P.L. 101-508.
January 1, 1991	Beginning of first quarter for rebates to be collectible.
February 21, 1991	HCFA published rebate agreement for manufacturers as a final regulation in the Federal Register.
March-April, 1991	HCFA developed central rebate data file systems.
April-June, 1991	Initial rebate agreements signed by some manufacturers; initial unit rebate amounts (URAs) computed by HCFA.
July-August, 1991	Lists of manufacturers with rebate agreements were sent to states
Fall, 1991	First HCFA rebate tapes sent to states with data for three quarters of 1991.
1992	Majority of program systems implemented; drug "unit" problems evident. Manufacturers were added to rebate program as agreements were signed.
1993	HCFA changed drug unit types. Incremental changes to the program were made due to additional mandates. For example, rebate percentages changed for innovator drugs, and baseline dates to be used for inflation calculations on new drugs were changed.
1994	Implementation of OBRA '93 changes; efforts at HCFA undertaken with respect to program edits.

It should be noted that as of April, 1995, regulations for the rebate program have still not been

published. HCFA personnel explained that incremental changes to the program as periodically

mandated made each earlier draft of regulations obsolete. Additionally, the mandate was highly

detailed and described a number of aspects by statute that could have been established through

regulations.

Several individuals interviewed observed that the very short lead time for the program, consisting of less than two months after enactment, was highly unusual for a major program initiative at HCFA. The reason for the program's effective date being so soon after enactment was to allow inclusion of estimated cost reductions for 1991, in order to meet federal budget neutrality targets. The program was expected to reduce expenditures at both the federal and state levels, and therefore engendered a good degree of political support. Policy-makers, however, did not adequately consider the time needed for development of a detailed modification to health care payment methods. On the other hand, it is not clear to what extent a greater amount of lead time would have prevented some of the technical difficulties encountered with implementation.

IV.B.3. HCFA Responsibilities for Rebate Program Implementation

HCFA staff reported the agency was involved relatively late in the development of the rebate program authorizing legislation. Early implementation of the program at HCFA was assigned to a small working group of about five staff, representing divisions including the Office of Medicaid Policy, the Office of Medicaid Management, the Bureau of Data Management and Strategy, and the Office of the General Counsel. Shortly after formation of the working group, an advisory group was convened of representatives from trade associations representing pharmaceutical manufacturers and retail pharmacies. The agreement to be used for labelers participating in the rebate agreement was prepared and published as a final regulation in the Federal Register in late February of 1991.

At the same time that the rebate agreement form was being drafted, the rebate program data files, which would record information on manufacturer pricing according to statute and compile prescription drug utilization data provided by states, were being designed by HCFA operations staff. The quarterly individual drug pricing data by NDC, which are received from manufacturers, are used for

calculations of rebates at HCFA according to specified formulas. The critical items of information needed for the calculations are: the quarterly average manufacturer's price; and, in the case of single source and innovator multiple source drugs, the best price available to any customer and the baseline average manufacturer's prices applicable prior to the rebate program's initiation (computed using third calendar quarter prices for 1990).

HCFA staff reported difficulty in obtaining needed pricing data in a timely manner from some participating manufacturers, particularly smaller ones. Labelers who do not provide this information can be terminated from the rebate program, but attempts are generally made to work toward resolution before that step is taken. Quarterly files sent to states for computation of rebates due may not have adequate rebate amount information on all the drugs covered, for this reason. Also, changes may be made to earlier rebate amount data provided to states, through the use of "prior period adjustments". The states must develop corrected rebate amounts due using these prior period adjustments. Otherwise, the states would be unable to determine if the amounts received from manufacturers are those due and payable, since the drug companies are aware of, and in fact compute, the changes to rebate amounts, adjusting rebate payments accordingly. HCFA staff mentioned that several audits conducted by the Office of the Inspector General (OIG) have determined that not all states have been completing this process. States, in turn, noted that the prior period adjustments were somewhat onerous from their perspective, due to the fact that these could be required even for rebate invoices computed years in the past.

In addition to receiving data from pharmaceutical manufacturers for use in rebate computation, HCFA collects data from all state Medicaid agencies on prescription drug utilization by NDC. Quarterly drug utilization data undergo some routine screens at HCFA for consistency with earlier period data. However, the 1991 state utilization data are not considered sufficiently edited at this time, due to various start-up difficulties.

A HCFA rebate program telephone hotline was developed early during implementation, so that manufacturers, state rebate program directors, and others concerned could have ready access to HCFA personnel. The hotline was reported to have received a massive number of calls in the early stages of the program, since all participants were attempting to decipher the program and plan their portions of it at once. The use of the hotline, in conjunction with the advisory groups formed to provide consultation to HCFA, facilitated the communications process as the program developed. HCFA also used a selected group of state pharmaceutical program directors to form a technical advisory group (TAG), convened by conference calls, that could identify and address implementation problems.

According to several state personnel interviewed, the rebate program is still not fully implemented nationally. Some states are still having difficulty strategizing and carrying out processes for resolving disputes over utilization data and rebates invoices. Due to limitations on resources and data availability at the state level, some states have greater difficulty with final resolution than others. The opinion was expressed by some persons interviewed that states would need to allocate more resources in order to adequately operate the more troublesome aspects of the program. Additionally, HCFA and states are still trying to come to terms with some difficulties related to differences in the units used by pharmaceutical manufacturers to price their products, and the ways in which pharmacies and other dispensers are paid by state Medicaid agencies.

IV.C. Pharmacy Benefit Programs

Pre- and Post-OBRA 90

In this section, the key policy characteristics of selected state Medicaid pharmaceutical benefit programs are summarized. Although a prescription drug benefit, with the exception of prescribed contraceptives, is not generally a required Medicaid benefit, legislation including OBRA 90 has affected the form that such benefits may take. The benefit for prescribed contraceptives is federally mandated to be provided under states' family planning benefits, which provide for 90% federal financial participation rates with all states. Only those contraceptives that are classified as drug products are subject to rebates, however.

The most critical component of the OBRA 90 legislation with respect to state coverage decisions is the prohibition of formulary use; previously, states could limit which drugs were covered for Medicaid beneficiaries by defining a set of drugs that would be covered (positive formulary), or not covered except in special cases (negative formulary). Whether a positive formulary or negative formulary was used, the effect was that the drug payment programs could automatically reject for payment any drug not on state "approved" status. While OBRA 90 removed the ability to automatically reject specific drug products for payment, states could still operate prior authorization programs that seek to determine the appropriateness of use of specific drugs for a particular patient, before payment is made. The other key coverage restriction mandated by OBRA 90 was that only drugs sold by labelers (manufacturers, distributors, etc.) that had signed rebate agreements with HCFA would be eligible for federal financial participation. In other words, states could elect to cover drugs lacking HCFA rebate agreements, but 100% of those drug costs would need to be paid from state funds.

IV.C.1. Changes to Pharmacy Benefit Programs

Six of the twelve states interviewed for the administrative impact analyses reported having had restrictive formularies in 1990. These states were: Arkansas, California, Georgia, Kansas, Missouri, and Ohio. One of the research questions to be considered is: To what extent were existing formularies converted to extensive or expanded prior authorization programs? Also, what effect did any changes in drug coverage (or access) have on utilization and expenditures?

In Exhibit IV..2, states covered under this portion of the study are described in terms of presence of formularies prior to OBRA 90, status and extensiveness of prior authorization programs, and other restrictions on prescription drug benefits. The interviews with states covered prior authorization programs in depth, including any changes made to those programs after OBRA 90. As evident from Exhibit IV.2, prior authorization (PA) programs were apparently not greatly expanded due to OBRA 90, even when formularies were discontinued. The only state interviewed (Iowa) that reported expanding its prior authorization program substantially had no formulary prior to the legislation, and this expansion was part of overall cost containment efforts by the state Medicaid program. Another state, California, had made substantial modifications to its formulary and developed an extensive prior authorization program at about the same time as the rebate program was implemented, but reported in its interview that these changes were made in 1990 prior to OBRA 90 enactment.

Two other major types of restrictions possible for prescription drug benefits, limits on the number of prescriptions covered for payment in the same month for the same individual, and drug payment limits in terms of maximum allowable costs (MACs) for specific drugs with generic alternatives, are also indicated in Exhibit IV.2. One state decreased the number of prescriptions that could be filled and covered for an individual, but had such limits previously, and another state completely removed a limit it had earlier. Only one state among those interviewed that did not previously have prescription

number limits instituted them, and this did not occur until 1994 as part of a general cost containment effort. Limited evidence suggests that attempts at cost containment through flat limits on prescriptions may result in increased total program expenditures for certain disease states due to use of other health care services.[1] Such limits may result in increased use of emergency departments and other services by populations such as the chronically mentally ill, and increased institutionalization of frail elderly.

For these states, it appears that the OBRA 90 rebate features led to neither wholesale adoption nor expansion of various limits on types of drug coverage or payment that were still allowed, after authorization for formularies was removed. When prescription drug policy staff of states with formularies were asked why they did not simply convert the items previously on a formulary to prior authorization status, they replied that to have done so would have required substantial additional staff and consumed other Medicaid program resources that were not available. Rather than trying to obtain these resources, the simplest strategy, at least in the short run, was eliminate the formulary and forego other control mechanisms, as well. As one state Medicaid drug program director described, major pharmaceutical manufacturers, who had previously considered the director and Medicaid agency to be a major impediment to obtaining approval for their drugs on the state formulary, were very surprised and pleased to see all restrictions lifted.

IV.C.2. State Resources and Staffing Related to the Rebate Program

We sought to determine the effects of the rebate program and related aspects of OBRA 90 on administration of prescription drug benefits, including effects on staffing patterns and organizational structures. Prior to OBRA 90, drug benefit policies were administered in most states by few staff

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[1] Soumerai, S., McLaughlin, T., Ross-Degnan, D., Casteris, C., Bollini, P.: Effects of Limiting Medicaid Drug-Reimbursement Benefits on the Use of Psychotropic Agents and Acute Mental Health Services by Patients with Schizophrenia. New England Journal of Medicine, Sept. 8, 1994, 331(10): 650-655.

members. The person in charge of the drug benefit program, in most states, was a pharmacist, who may or may not have had assistants. Where prior authorization programs were present, these were generally administered by additional state personnel or by contract personnel, usually with pharmacy backgrounds.

Of the nine states interviewed by telephone, one reported an increase in Medicaid prescription drug program staff by three full-time persons after OBRA 90. These three staff members were originally hired in order to decrease prior authorization response time to the specified limit of 24 hours. After the Medicaid agency later decided to operate the prior authorization program by contractual arrangement, the state staff were retained for the drug unit and re-assigned to tracking rebates received. One other state reported substantially increasing its contract staff available to the Medicaid drug program in order to administer rebates. The seven remaining states interviewed by telephone made few drug program staffing changes as a result of OBRA 90, beyond minimal changes to fiscal agent contracts in order to develop needed utilization data and invoices. States interviewed during site visits reported similar hiring patterns; they described in depth how difficult it was to obtain approval to hire staff through Medicaid program administrators, since to do so would have been perceived as "expanding state government". Developing outside contracts to handle new functions was reported as far easier for state administrators in terms of obtaining needed approval, because the contract services were considered qualitatively different from hiring actual employees. However, the cost of contractual services is not necessarily lower than that for state employees.

Since states rarely expanded prescription drug program staff numbers to handle the rebate functions, some reported great difficulty finding time to carry out the more time-consuming functions, such as dispute resolution. Although the rebate program was perceived as having benefits by some states, a "nuisance factor" was described, related largely to the multiple requests by manufacturers for verification of utilization data and difficulty in collecting and reconciling payments, that indicated

contribution of the program to an over-burdening of existing staff. Largely, drug benefit program administrators separated the program's revenue-producing potential from their frustration with trying to deal with hundreds of manufacturers over thousands of drug codes that may or may not have been accurately reported by pharmacies. State budget allocations to the drug program or to the Medicaid program as a whole, however, were often reduced by the amount of rebates expected. Thus, the rebate program was viewed as a cost in some Medicaid agencies, rather than as a cost-saving measure. In part, this explains some of the difficulty in obtaining additional resources for rebate program operations.

States reported difficulty in projecting prescribed drug program expenditures accurately. Expansion in number of program eligible persons, increased utilization of drugs per person, and rising drug prices were cited as possible contributing factors to increases in prescribed drug program expenditures. States interviewed routinely reported they had not been able to extensively analyze the reasons for their increased drug program expenditures.

IV.D. Implementation of the Drug Rebate Program
and Related OBRA 90 Provisions

Several issues were faced by states as they implemented the drug rebate program including: state policy issues, implementation methods and strategies, and positive and negative influences on the implementation process. Each of these issues was covered in the state interviews and the findings are summarized below.

IV.D.1. State Policy Issues for the Rebate Program

State Medicaid program administrators were faced with four main policy issues associated with the implementation of the drug rebate program. First, they needed to restructure drug benefit programs to be in compliance with OBRA 90 mandates and communicate changes to practitioners. Second, they had to develop information systems to collect, assemble, and report the data needed to compute and send invoices on rebates. Third, they developed ways to work with manufacturers in order to collect rebates. Fourth, they needed to address state administrative requirements, including development of rules and regulations on the program. Each of these major policy issues and the strategies adopted by states to implement them is described below.

The degree of restructuring needed for drug benefit programs, as stated earlier, depended on each state's coverage policies prior to OBRA 90 and how similar these were to features allowed under the legislation. For many states, the OBRA 90 mandates provided few changes, but in other states the mandates required extensive changes. While states had developed their coverage policies, including formularies and prior authorization programs, over a period of many years, the OBRA 90 legislation required them to adopt new policies in a matter of months. Communicating changes in policies to physicians and pharmacists in the state was not a minor task. In some cases, meetings and professional networks were used to convey the changes to providers, but more often, newsletters and written notices were the main communication mechanisms (see Appendix B for examples). The potential existed for some Medicaid programs and providers to be confused by the changes in policy, leaving them uncertain as to which drugs could be covered under the program. Delays in making lists of rebatable (and thus payable) drugs available to states from the federal level, which had its own time frame pressures, made matters all the more uncertain for state Medicaid programs and providers in early 1991. Eventually, major drug coverage questions were resolved, after numerous memoranda from HCFA to states and from states to providers. Ideally, the phase-in schedule for the program would

have allowed for the coverage changes to be completed and then communicated to providers over a period of months. The actual schedule required states to make many coverage changes retroactive for various periods of time.

The second major policy issue at the state Medicaid level centered on the development of administrative information systems for rebate data. While all of the state management information system programs had been designed to adjudicate claims and conduct some utilization review functions, these systems were modified to collect the data needed for OBRA 90. Modifications needed were not extensive in most cases, but some states were confused on which data elements were to be provided to manufacturers. Manufacturers refused to pay some invoices, but did not always provide explanations as to why. State staff then needed to determine, through telephone calls and other means, which bills went unpaid and why. Additionally, some states faithfully computed the differential federal shares they owed on rebates for contraceptive products (90% federal share of payments and rebates) and other drug products (the established state-specific match), but other states appear to have overlooked this.

The third major policy issue related to the ways in which state staff and manufacturers worked together to resolve difficulties with the program. A great deal of time and effort was devoted to communications, including phone calls and letters, between Medicaid administrators and pharmaceutical manufacturers, trying to clarify amounts of products utilized and invoiced. In some cases, state staff considered manufacturers to be helpful in terms of resolving questions, while in other cases, those interviewed felt that some manufacturers purposely obfuscated the issues in order to delay progress. This issue, involving the development of methods for effectively communicating accurate information both to manufacturers whose products have been used, and back again to the Medicaid agency that is owed the rebates, became a major implementation obstacle to efficiently operating the program.

The fourth major policy issue related to state agencies' needs to develop and disseminate state-level rules and regulations on the program. In some states, this was a relatively straightforward process, since the program had a federal mandate and could be automatically adopted. In other states, the regulatory structure of the state was such that public hearings had to be conducted, regulations needed to be published and could only be published according to a restrictive time schedule. Most states could not clarify their program requirements and regulations until guidance was received from HCFA on program characteristics. However, HCFA staff were in the midst of determining program requirements at the same point that states needed to be defining their rules, due to the short time schedule. One state interviewed described a particularly litigious atmosphere that results in Medicaid program changes being frequently challenged by a vocal recipient, provider, and advocate communities. However, little opposition to the rebate program had been experienced in this state to date.

IV.D.2. States' Implementation Methods and Strategies

Each Medicaid agency developed its own methods for implementing the rebate program, geared toward existing organizational structures. Nevertheless, some commonalities became apparent in the way that state Medicaid directors approached the program. In all but one case interviewed, the Medicaid directors simply assigned implementation responsibilities to the director of the prescription drug benefit program. In the one exception, the state was very small and had a consultant pharmacist who worked only two days per month. Responsibility for rebates in this state was assigned to a utilization review specialist. In most states interviewed, few additional resources were provided to implement the program, and only a few months were available to get the program operational. In spite of these constraints, the prescription drug program directors rapidly designed the program and made it operational, with little outside support. None of the states interviewed hired a consultant specifically to develop the rebate program, although several expanded their existing claims processing contracts to

include rebate computation and, in a few cases, collections. Small working groups of key Medicaid employees and claims processing contractor staff were frequently used to plan program implementation. Some of the states interviewed could have benefitted from devoting greater resources to the implementation of the program.

Several specific strategies commonly utilized were as follows:

1. Several prescription drug program directors had advance warning about the program as it was being legislated, and may have been prepared to deal with it as soon as enacted. If this was not the case, the directors soon were notified by colleagues in other states or by their Medicaid program director.

2. The MMIS staff (either state employees or contractors) modified drug payment files and created rebate file structures, usually with guidance from the prescription drug program administrator.

3. Prescription drug program directors or other administrators drafted administrative rules or regulations to be disseminated to the public. At least one state was required to hold public hearings on details of the program. Under most state rules, pharmaceutical manufacturers are rarely defined as "providers" for the purposes of medical assistance programs. Thus, the usual Medicaid program compliance measures, such as regulations on fraud and ability to conduct administrative hearings with providers, do not always apply to pharmaceutical manufacturers. Several states felt they could not conduct hearings with manufacturers having substantial outstanding rebate balances, for this reason. Thus, their only alternative for non-paying manufacturers was persuasion, or reliance upon HCFA initiatives.

4. Persons involved with Medicaid program financial operations and with the prescription drug program made preparations to receive and track the rebate payments. Although it is not uncommon for Medicaid agencies to receive payments, this revenue-producing program appears to have been beyond the scope of some states' systems for monitoring collections. Two persons interviewed mentioned auditing teams had developed unfavorable reports on the program. This was partly due to difficulties in collecting from manufacturers, but also partly related to the systems (or lack thereof) for tracking payments.

5. Pharmacists, physicians and other providers needed to be notified about policy changes to the drug benefit program and of changes to coverage due to OBRA 90. As mentioned earlier, this was generally done through written bulletins. For states with online claims processing systems already in place, the coverage of a particular drug is indicated to pharmacists at the time the prescription drug is dispensed to the patient, but for states without these systems, communication with pharmacists on changes in coverage of drugs was more difficult. Additionally, the prescribing practitioner rarely has access to the online systems, and thus relies on printed materials, word-of-mouth, and pharmacist phone contacts to know which drugs may be prescribed and covered for Medicaid patients. In various states the planned expansion in coverage of drug products did not effectively occur until late 1991, as providers became familiar with new program coverage guidelines.

The leadership provided by prescription drug program directors appeared key to the implementation of the OBRA 90 rebate program. These directors operated with few rules and regulations and little guidance from the director of the agency. Definitions of the program evolved as it was implemented, and systems modifications were required to make the program work effectively. The Medicaid drug benefit program directors appeared to be among the few at the state level who understood the intent of the OBRA 90 program and set about trying to make it work, often through temporarily borrowing staff from other units as needed to help. In states where claims management services were purchased from outside firms, those organizations often helped implement the program in exchange for increased fees.

IV.D.3. Positive and Negative Influences on Implementation

During each of the interviews with states, including both those personally visited by the interviewers and those contacted by telephone, respondents mentioned a variety of factors that were favorable to, or helped with, rebate program implementation, and numerous factors that created difficulties for, or hindered, implementation. In order to assess the frequency and possible degree to which these factors affected states, we conducted extensive content analysis of the documentation from all interviews. Each interview document was reviewed in its entirety, and all factors mentioned as favorable to, or presenting difficulties with, implementation of the rebate program and related elements were noted. Numbers of states citing the same or highly similar factors were totaled. Although the method used to review interviews was as objective as possible, it should be remembered that, as with all interview data, the findings are dependent upon numerous subjective factors, including respondent recall. Due to the open-ended nature of questioning, results should be interpreted with particular caution.

The factors cited most often as favorable to rebate program implementation are summarized in Exhibit IV.3. The factor most commonly cited, by nine of twelve states interviewed (75%), was the ability to develop gross revenues from operation of the rebate program. These revenues were typically viewed as substantial, with several states reportedly collecting 80%-90% of invoiced rebates. Few states had computed net revenue figures, however, after accounting for program operational costs. Additionally, this factor indicates a favorable outcome, rather than a favorable implementation experience. None of the other "favorable" factors with regard to rebates was cited by as many as one-half of states interviewed. Five states (42%) indicated they needed to make very few changes to the state prescription drug benefit program in order to implement rebates. Generally, these were states that did not have restrictive formularies in existence prior to OBRA 90. Extraction of claims data and computation of rebate amounts was also cited as a relatively straightforward process by five states. The final two factors mentioned as favorable by at least three states related to: (1) the program's ease of implementation due to Medicaid agency resources including well-designed information systems and competent staff; and (2) the fact that some state pharmaceutical benefit staff had been well-informed of the proposed legislation's existence and features before, or just after, its enactment which helped prepare them for program implementation.

While only mentioned by two states each, several other factors were considered to have contributed to some states' ability to operate the program. Two states mentioned that their effective, comprehensive systems for auditing and editing pharmacy claims, and taking actions on these systems' findings, led to a confidence in their utilization and rebate data not shared among all states. Two other states indicated that they had developed effective working relationships with their claims processors in terms of operating the rebate program and verifying utilization data, and that this contributed to their rebate program's relative success.

Although the factors mentioned above indicate several favorable perceptions by states of the rebate program, states interviewed unfortunately tended to cite more difficulties, and with greater consistency among those cited, than favorable findings. For example, every state (n=12) interviewed indicated that there had been difficulties with collecting rebate amounts invoiced to various pharmaceutical manufacturers. Typically, there were questions by manufacturers as to whether or not the state pharmaceutical utilization data were accurately reflective of the drug's actual utilization by the Medicaid population. Issues of confusion over drug unit types contributed to some questions, but did not entirely account for the alleged discrepancies. The problem of inconsistent definition of drug "units" for the program was a prominent theme among most states interviewed. Some unit types were clearly more problematic than others; tablets, capsules and other oral solid dosage forms were generally perceived as being problem-free in comparison to the injectables, creams, and inhalers. The billing and payment systems used by pharmacies and state Medicaid programs often differed substantially in definitions of units from those reported by manufacturers to HCFA for the rebate agreements. One person interviewed indicated that there will probably never be 100% consistency among unit types, since each state customizes its payment system for some drug products. However, translation factors are utilized once some degree of consistency is achieved.

Eleven states (92%) of the twelve interviewed indicated they had very few resources, particularly staff time, to operate the rebate program. Difficulty in finding time to properly operate the program was a recurrent theme. Only one state, which had contracted for all rebate operations including dispute resolution, did not consider this to be a problem. This state, however, spent up to ten times as much annually, according to its cost data provided, as other states studied, to operate the program. Because pharmacy program staff in other states were usually unable to get approval to hire sufficient staff in their opinions to operate the program, the rebate duties were "squeezed in" with their other functions. The difficulty with obtaining staff time appeared to transcend concerns of cost and

encompassed a general management philosophy among state administrators to minimize staff, regardless of need. Under these circumstances, higher-level administrators rarely approved addition of personnel.

More than one-half of the states (58%) interviewed cited problems with the data files received from HCFA, including tapes received late, data omissions or errors, and even occasionally, blank tapes shipped for use in computation of rebate amounts. Data omissions occur when HCFA does not receive needed rebate information from manufacturers, and therefore simply indicates the rebate amount per unit as "0". Overall frustrations with a lack of specific guidance from HCFA staff were also expressed. Several states interviewed had participated in the pharmacy technical advisory group (TAG) conducted by telephone discussions with HCFA, and thought that this form of communication had been helpful. However, at least one state pharmacy program director felt that the HCFA program staff did not necessarily follow the TAG's recommendations. HCFA staff counter that virtually all recommendations of the advisory group are followed whenever possible. A few state employees indicated awareness and understanding that HCFA had a very short time frame in order to make the program operational. Also, since HCFA is not generally accustomed to working with states directly through the central office, regional offices have more experience with conducting needed liaison and oversight of programs.

Some state personnel felt that they had to carry most of the burden of the program, when more assistance from HCFA might have been desired, in their opinion. For example, several state personnel mentioned that they had little legal or regulatory power over national and international manufacturers, since the actual rebate agreements had been signed with HCFA rather than with states. However, the states were made responsible for collecting the rebate amounts due from occasionally reluctant payors and for resolving disputes over utilization amounts.

The accuracy and quality of claims received from pharmacies were cited as obstacles to program performance by over half (58%) of states interviewed. Some difficulties mentioned related to interchanging billing codes of generically equivalent drugs, including substitution of the brand name drug code for the generic equivalent. When a number of generic equivalents are on the market, the pharmacist may be presented with a computer screen (as part of online claims processing) with five or more of the same chemical entity, strength, and dosage form of a drug made by numerous manufacturers. Some states reported that busy pharmacists may verify the first of the generic equivalents in order to move on to the next prescription, regardless of which labeler's product is in stock. Indeed, from the pharmacist's perspective, these products are identical in most respects, unless the brand name drug is actually dispensed. In other cases, the potential exists for a pharmacy to enter the brand name product instead of the generic for payment, although the Medicaid program will only pay for the brand name if the physician has indicated that the prescription must be 'dispensed as written.' One state representative considered removal of a brand name antibiotic from the drug payment file, since it was known that in current practice the generic equivalent product was usually dispensed. In cases like this one, states also have the authority to establish state-established Maximum Allowable Cost (MAC) amounts based on the generic prices. Several states indicated it was necessary, when attempting to resolve rebate disputes, to extract pharmacy-specific data for examination in order to determine whether billing and utilization data problems existed. In rare cases, pharmacies were asked to provide copies of their wholesale drug purchase invoices to the Medicaid agency. The time required to conduct such verifications on a pharmacy-specific basis is, of course, substantial when hundreds of pharmacies operate in a state.

In general, the states reporting the fewest problems with operating the rebate program and with verifying drug utilization levels were those that were larger and that had strong existing programs for auditing pharmacy claims and generating pharmacy-specific reports on utilization. Several other factors of difficulty were mentioned by fewer than one-half of states interviewed. Exhibit IV.4 summarizes the

information given above and provides identification of additional difficulties cited by at least four of the twelve states interviewed. These included:

* Difficulties with claims processors in handling the program or in their ability to develop pharmacy and NDC-specific data on request;

* Information systems needing substantial changes or improvements in order to create the type of data needed for utilization data verification;

* A lack of effective, standardized procedures for reconciling invoices to manufacturers;

* The need to relinquish formularies, and a reluctance to develop extensive prior authorization programs, due mainly to cost considerations; and

* A very short time frame allowed to develop the program and resolve issues.

IV.E. State Administrative Costs
for the Rebate Program

States included in the administrative impact interviews were asked to provide data on administrative costs of establishing and maintaining the drug rebate program. Only limited data on the costs of operating the rebate program have been collected by HCFA.

Each of the states interviewed was asked to provide detailed data on the costs of developing and operating the rebate program. Only data related to direct costs of the program were collected, since the rebate program was developed as an adjunct to the main tasks of operating a Medicaid prescription drug benefit. The nine states involved in the telephone interview portion of the study were all sent expense and revenue data forms to be completed by cost category, and the three states participating in on-site interviews provided similar details on program costs. All twelve states in the administrative study were ultimately able to provide estimated cost and rebate revenue data for the first three years of program operation (1991-93). Costs were requested in the categories of: (1) personnel expenses, including salaries and benefits; (2) office operations expenses, including telephone and

printing charges; (3) computer systems programming costs; (4) computer purchase costs; and (5) other costs not represented in the previously stated categories. Specific instructions were provided to states on the completion of the cost data collection forms. Expenses due to the development of drug utilization review programs were specifically indicated to be excluded, since analysis of that program was beyond the scope of this project.

As prescription drug benefit program directors had explained, most states had few resources available to operate the rebate program. This description was largely confirmed by the expenditure information submitted. Table IV.1 indicates the mean, median, minimum, and maximum direct costs incurred by the twelve responding Medicaid agencies in order to operate rebate functions. Values are reported in aggregate for each of the three full calendar years (1991, 1992, 1993) of rebate program operations, and in aggregate for the three-year average costs of each state. In each individual year from 1991 to 1993, mean costs for the twelve states grew slightly from about $93,000 to about $123,000 per state, on average, with the median cost in each of the three years being between $50,000 and $90,000. The mean program cost was substantially higher than the median cost in each year for these states, due to one or two states having costs much higher than those of the other states.

The range of total program costs among states examined was substantial, with the year 1993 displaying the greatest variation between minimum ($49,600) and maximum ($628,400) costs per state. The standard deviations, noted in Table IV.1, were also large. When each state's costs were averaged over the three-year periods, in order to compensate for year-to-year fluctuations, similar data patterns were observed. As reported in Table IV.1, for the three-year period, the study states reported an average of $106,500 in annual operations cost, with a median of $75,000 annually.

Using the three-year average costs, about 70% of the total rebate program costs, on average (for states able to break out costs by category) were allocated toward program staffing. Two states not breaking out costs by category had rebate programs operated almost completely by outside contractors. The next greatest proportion of expenditures was devoted, on average, to computer systems programming costs. These costs represented about 18% of total expenditures. The remainder of expenses were devoted to computer purchases (about 6-7% on average), office operations (about 4-5% on average), and other miscellaneous cost items, such as furniture.

Since each state had a somewhat different timetable for program start-up, it was not generally possible to separate the start-up costs of the program from those related to ongoing operations. Several states waited until the second year, or even the third, of operations to determine what types of administrative systems modifications would be necessary to operate the program more effectively. While these states had been able to generate rebate invoices in the first year of the program, the types of information needed to verify utilization data were not always defined until later in the implementation schedule. Several persons interviewed said that their state was still in the start-up mode, in their opinion.

Aggregate data on rebate program collections for the states examined are reported in Table IV.2. The gross rebate collection amounts appeared substantial. During 1991, the start-up year of the program, the mean rebates collected by the twelve states reporting were about $20 million, and the median was about $13 million. Two states did not collect any rebate revenues in 1991, due to slow start-up operations. Average rebates collected in dollar terms grew over time, as expected, since the prescription drug expenditures were also rising. Using the three-year averages developed for each state's rebate collections, the mean annual amount collected by these states in rebates was over $31 million, and the median was over $20 million. States certainly are expected to vary in their rebate collections, since those with larger prescription drug expenditures also accrued greater rebate amounts.

Table IV.3 is used to show rebates collected by states as a percentage of total outpatient drug expenditures. During 1991, the start-up year of the program, rebates collected by these twelve states constituted about 13%, on average, of their prescription drug claims expenditures. Rebate collection figures rose in 1992 and 1993 to 17.7% and 18.5%, respectively, of drug program expenditures on average for the states analyzed. Using three years of each state's rebate data to minimize year-to-year fluctuations, weighted average rebates collected as a percentage of drug program expenditures amounted to 16.8%. The rebate amounts collected represent substantial discounts off of the amounts expended for drugs used by the Medicaid population. Although comparable figures are not available on private sector prescription drug rebate or discount programs, several pharmaceutical manufacturers had voluntarily offered rebates to states of only approximately 10% of prices prior to OBRA 90.

Administrative costs of the rebate program were relatively low, as expressed in terms of rebates collected. Table IV.4 summarizes these data. During 1991, the year with the lowest rebate collections, the average costs of the program across states were 0.5% of the amounts collected. Considering the three-year means for each state, program costs averaged 0.9% of amounts collected. From the administrative cost perspective, the program appeared efficient, given that less than 1%, on average, of the amounts collected were expended by state Medicaid programs for operation of the program.

Exhibit IV.5 presents the cost of rebate program operations as a percentage of the Medicaid drug program expenditures, in aggregate for the states examined. The average program costs were 0.18%, 0.13%, and 0.11% of drug claims payments for 1991, 1992, and 1993, respectively. The costs of operating the rebate program apparently did not rise as rapid as did drug expenditures, although both variables did rise over time. Some of the first and second years' costs of operating the rebate program were devoted to initial programming and other start-up efforts.

There appear to be economies of scale to operating the program in states with larger drug expenditures, in comparison to states with lower drug expenditures. The states among our analysis set that were lower in drug expenditures also had higher rebate operations costs, as a percentage of claims paid. Table IV.6 presents these data. For the six smallest states (in terms of Medicaid drug expenditures) in the analysis, the rebate program cost as a percentage of drug expenditures averaged 0.33% in 1991. For the six largest states, the comparable rebate cost statistic averaged 0.03% of total expenditures in 1991. This is consistent with the notion that the rebate program appears to be predominantly a fixed-cost function, with the process of developing rebate reports and invoices taking similar amounts of resources regardless of the number of drug claims that must be aggregated. Also, each state generally deals with the same number of manufacturers to collect the amounts due. Over time, the differences between small and large states in rebate operation costs as a percentage of total drug claims cost moderated somewhat, with the smaller states averaging 0.14% and the larger states 0.08% of prescription drug claims cost in 1993.

One other observation warrants note. The states with the lowest collections of rebates, as a percentage of drug claims cost, tended to be the smallest states in this analysis set. Of the four states collecting 16% or less of their prescription drug claims cost as rebates over the three-year period studied, three were among the lowest ranking five states in terms of total drug program expenditures. The program may have been overall more difficult for the smaller states to implement, since these states function with fewer resources and thus, have less flexibility when new program initiatives arise. Also, the smaller states may have lesser ability to substantially update claims data and information systems in comparison to larger states, contributing to difficulties with verifying utilization reports and defending rebate amounts invoiced. Although different mixes of drug types (e.g., single source versus multiple source) as used by Medicaid beneficiaries in the smaller states versus larger states could also lead to differing rebate percentages.

A consideration that has been a historical issue for some state Medicaid programs is the degree to which cost containment efforts affect program participation, and thus, access of beneficiaries to services. For example, some states have had difficulty achieving an adequate degree of physician participation when Medicaid fee schedules are perceived as too low. While there has not been observed any large exodus of prescription drug manufacturers from the Medicaid drug rebate program due to the need to pay rebates, the potential exists for labelers to decide that participation in the Medicaid program is not adequately profitable. One state that has developed its own substantial rebate program agreements in addition to the federal agreements indicated that pharmaceutical manufacturers may threaten non-participation if the rebate amounts demanded are too great. Given that Medicaid program purchases are large enough to matter to sellers (generally over 12% of drug sales in a given state), manufacturers are not likely to pursue this route unless rebates are perceived as very large, or they collude to act as a cartel. Furthermore, the rebates are based on the manufacturers' own weighted average prices and best prices charged to certain customers.

Table IV.1
State Medicaid Agency Cost of Rebate Program Operations:
1991-93

Year	Mean	Median	Standard Deviation	Minimum	Maximum
1991	$92,611	$55,730	$108,265	$24,100	$423,936
1992	$104,555	$85,978	$83,250	$37,233	$345,443
1993	$122,579	$60,994	$161,740	$49,629	$628,435
State 3-Yr. Averages	$106,582	$74,955	$84,567	$45,851	$332,659

n = 12 states

Table IV.2
State Medicaid Rebate Program Revenues Collected:
1991-93 ($1,000s)

Year	Mean	Median	Standard Deviation	Minimum	Maximum
1991	$20,521	$12,975	$23,691	$0	$80,548
1992	$34,190	$23,993	$35,164	$4,555	$118,842
1993	$41,125	$25,630	$45,308	$4,620	$157,676
State 3-Yr. Averages	$31,945	$20,866	$34,666	$3,058	$119,022

n = 12 states

Table IV.3
Rebates Collected as Percentage of Medicaid
Drug Program Expenditures: 1991-93

Year	Weighted Average %	Unweighted Average %	Standard Deviation	Minimum	Maximum
1991	13.3%	11.9%	5.7%	0.0%	16.7%
1992	17.7%	18.8%	3.4%	10.8%	22.6%
1993	18.5%	18.8%	2.2%	14.4%	22.7%
State 3-Yr. Averages	16.8%	16.9%	2.6%	11.0%	20.8%

n = 12 states

Table IV.4
Cost of Rebate Program Operations As
Percentage of Rebate Collections: 1991-93

Year	Average %	Standard Deviation	Minimum	Maximum
1991	0.48%	0.42%	0.12%	1.46%
1992	0.71%	0.66%	0.08%	1.88%
1993	0.58%	0.53%	0.07%	1.68%
State 3-Yr. Averages	0.89%	1.09%	0.09%	3.92%

Two states with no collections in 1991 excluded from that year's average ratios; however, these states are included in the 3-year averages

n = 12 states

Table IV.5
Cost of Rebate Program Operations As Percentage of
Medicaid Drug Program Expenditures: 1991-1993

Year	Unweighted Average %	Standard Deviation	Minimum	Maximum
1991	0.18%	0.33%	0.02%	1.15%
1992	0.13%	0.11%	0.01%	0.27%
1993	0.11%	0.10%	0.01%	0.23%
State 3-Yr. Averages	0.13%	0.13%	0.01%	0.43%

n = 12 states

Table IV.6
Cost of Rebate Program Operations As Percentage of Medicaid
Drug Program Expenditures: Small vs. Large States in 1991-1993

Year	State Size	Unweighted Average %	Minimum	Maximum
1991	Small	0.33%	0.08%	1.15%
	Large	0.03%	0.02%	0.06%
1992	Small	0.20%	0.08%	0.36%
	Large	0.07%	0.01%	0.22%
1993	Small	0.14%	0.07%	0.23%
	Large	0.09%	0.01%	0.33%
State 3-Yr. Averages	Small	0.21%	0.08%	0.43%
	Large	0.06%	0.01%	0.21%

n=12 states total; 6 small states vs. 6 large states,
defined according to total prescription drug claims cost

Exhibit IV.1

State Medicaid Drug Benefit Characteristics Before OBRA '90

State	1990 Drug Expend.	1990 # of Drug Recip.	1990 Drug Exp. Per Drug Recip.	State to National Ratio Rx $/Recip.	1990 Total Medicaid Expend.	Rank By Total Medicaid Expend.	Drug Exp. as % of Total Expend.	HCFA MSIS	Case Study State	1990 Formulary	1992 Capitation Program	1991 DUR Program
AK	$5,571,000	21,666	$257	1.01	$139,120,000	48	4.0%	Y				
AL	$60,566,000	253,128	$239	0.94	$609,299,000	29	9.9%	Y		Y	Y	
AR	$57,227,000	202,754	$282	1.10	$884,814,000	25	6.5%	Y	Y	Y		Y
CA	$538,742,000	2,676,027	$201	0.79	$6,509,935,000	2	8.3%			Y	Y	
CO	$35,250,000	133,591	$264	1.03	$515,696,000	32	6.8%			Y	Y	Y
CT	$52,161,000	180,842	$288	1.13	$1,205,197,000	18	4.3%					
DE	$6,004,000	28,944	$207	0.81	$123,175,000	49	4.9%	Y				
FL	$222,008,000	712,263	$312	1.22	$2,360,691,000	8	9.4%				Y	Y
GA	$144,000,000	501,918	$287	1.12	$2,076,110,000	12	6.9%	Y	Y	Y		
HI	$16,127,000	66,039	$244	0.96	$191,320,000	42	8.4%	Y		Y	Y	
IA	$52,963,000	185,406	$286	1.12	$620,252,000	28	8.5%	Y		Y		Y
ID	$11,876,000	39,478	$301	1.18	$162,191,000	45	7.3%					
IL	$181,732,000	833,592	$218	0.85	$2,424,020,000	7	7.5%			Y		Y
IN	$113,620,000	267,325	$425	1.66	$1,342,522,000	15	8.5%	Y		Y		
KS	$29,713,000	131,862	$225	0.88	$490,588,000	33	6.1%	Y	Y	Y		Y
KY	$65,877,000	344,940	$191	0.75	$976,855,000	22	6.7%	Y		Y		Y
LA	$116,574,000	441,561	$264	1.03	$1,314,752,000	16	8.9%					Y
MA	$118,500,000	416,547	$284	1.11	$2,730,269,000	6	4.3%				Y	Y
MD	$67,511,000	235,981	$286	1.12	$1,090,293,000	20	6.2%					Y
ME	$30,864,000	102,378	$301	1.18	$432,013,000	35	7.1%	Y				Y
MI	$172,638,000	764,171	$226	0.88	$2,195,770,000	10	7.9%			Y	Y	Y
MN	$73,864,000	267,365	$276	1.08	$1,410,378,000	14	5.2%			Y	Y	Y
MO	$63,745,000	302,550	$211	0.82	$897,284,000	24	7.1%	Y	Y	Y		Y
MS	$71,721,000	329,058	$218	0.85	$586,121,000	30	12.2%			Y		Y
MT	$11,597,000	43,553	$266	1.04	$170,550,000	43	6.8%			Y		Y
NC	$104,339,000	378,115	$276	1.08	$1,426,024,000	13	7.3%					Y
ND	$9,937,000	33,003	$301	1.18	$193,805,000	41	5.1%	Y				
NE	$25,797,000	89,777	$287	1.12	$309,306,000	37	8.3%					Y
NH	$11,402,000	33,526	$340	1.33	$243,047,000	40	4.7%	Y	Y		Y	
NJ	$150,902,000	465,733	$324	1.27	$2,298,047,000	9	6.6%	Y				
NM	$20,757,000	92,454	$225	0.88	$275,240,000	38	7.5%					
NV	$8,337,000	31,149	$268	1.05	$148,591,000	47	5.6%	Y				
NY	$509,876,000	1,599,921	$319	1.25	$11,877,392,000	1	4.3%			Y	Y	Y
OH	$207,873,000	798,350	$260	1.02	$3,131,996,000	3	6.6%			Y		Y
OK	$45,346,000	187,609	$242	0.95	$687,545,000	27	6.6%			Y		
OR	$36,624,000	147,018	$249	0.97	$518,795,000	31	7.1%				Y	Y
PA	$235,600,000	766,494	$307	1.20	$2,883,103,000	4	8.2%			Y		
RI	$21,470,000	87,775	$245	0.96	$442,184,000	34	4.9%			Y		Y
SC	$50,395,000	220,579	$228	0.89	$743,068,000	26	6.8%			Y		Y
SD	$8,955,000	31,032	$289	1.13	$166,059,000	44	5.4%					Y
TN	$114,828,000	462,699	$248	0.97	$1,162,752,000	19	9.9%			Y	Y	
TX	$197,385,000	1,099,085	$180	0.70	$2,804,347,000	5	7.1%					
UT	$16,677,000	74,856	$223	0.87	$246,654,000	36	6.8%	Y			Y	
VA	$82,621,000	275,605	$300	1.17	$985,073,000	21	8.4%					Y
VT	$13,597,000	46,559	$292	1.14	$152,893,000	46	8.9%	Y				
WA	$78,940,000	340,280	$232	0.91	$952,447,000	23	8.3%	Y	Y	Y	Y	Y
WI	$101,998,000	285,171	$358	1.40	$1,248,363,000	17	8.2%			Y		Y
WV	$26,263,000	180,134	$146	0.57	$361,080,000	36	7.3%				Y	
WY	$4,965,000	22,008	$226	0.88	$58,930,000	50	8.4%	Y				
US*	$4,405,435,000	17,231,871	$256	1.00	$64,752,648,000		6.8%					

* Washington, D.C. and Arizona excluded.

SOURCES: Pharmaceutical Benefits Under State Medical Assistance Programs (Reston, VA: National Pharmaceutical Council, 1990 to 1994).

Exhibit IV.2
State Medicaid Prescription Drug Program Restrictions Pre- and Post- OBRA '90 for
States in Administrative Impact Analysis

State	Formulary	Prior Authorization Program		Limits on # Rx Per Person		State Drug Payment MAC Limits	
	Pre-OBRA 90	Pre-OBRA 90	Post-OBRA 90	Pre-OBRA 90	Post-OBRA 90	Pre-OBRA 90	Post-OBRA 90
Site Visit States:							
Missouri	Yes, restrictive	Yes, few drugs	Yes, few drugs	5/month	No limit	Yes	Yes
Pennsylvania	None	None	Yes, Est. July, 1994 All brand w/A subs.	No limit	No limit	Yes	Yes
Utah	None	None	None	No limit	No limit	No	No
Telephone States:							
Arkansas	Yes	Yes, moderate Some ther. categories	Yes, moderate Some ther. categories	6/month	3/month	Yes	Yes
California	Yes	Yes, extensive	Yes, extensive	None	10/month	Yes	Yes
Georgia	Yes, liberal	Yes, drugs with potential for abuse	Yes, drugs with potential for abuse	6/month	5-6/month	Yes	Yes
Iowa	None	Yes, few drugs	Yes, expanded Some ther. categories	No limit	No limit	Yes	Yes
Kansas	Yes	Yes Anxiolytics, etc.	Yes, less extensive Anxiolytics, etc.	No limit	No limit	Yes	Discontinued (Feb. 1994)
N. Carolina	None	None	None	6/month	6/month	No	No
Nebraska	None	Yes, few drugs: High cost, etc.	Yes, few drugs: High cost, etc.	No limit	No limit	Yes	Yes
Ohio	Yes	Yes, extensive All innovator drugs	Yes, extensive All innovator drugs	No limit	No limit	Yes	Yes
Vermont	None	Yes, few drugs	Yes, few drugs	No limit	No limit	Yes	Yes

Sources: Interviews with states, Univ. of Minnesota 1994 and Pharmaceutical Benefits Under State Medical Assistance Programs
(Reston, VA: National Pharmaceutical Council, 1990 to 1994).

		% of States Interviewed Mentioning Factor
1.	Program gross revenues seem substantial.	75%
2.	Little change needed to Rx benefit design.	42%
3.	Easy to work with paid claims files for rebate computation.	42%
4.	State information systems and staff perform well for program operations.	33%
5.	State staff informed about program in advance.	25%

n = 12 states interviewed.

Based on open-ended state Medicaid interview responses, 1994

		% of States Interviewed Mentioning Factor
1.	Difficulties collecting rebates; disputes over amounts	100%
2.	Few resources, staff to operate program.	92%
3.	Difficulties with pharmacy billings, e.g., wrong NDCs.	58%
4.	Data tapes from HCFA late, contained errors.	58%
5.	Lack of uniform guidance from HCFA.	50%
6.	Difficulties with claims processors.	42%
7.	Information systems needed substantial changes, improvements.	33%
8.	Lack of standardized forms and procedures for invoicing manufacturers.	33%
9.	Formularies needed to be opened, too costly to mount large prior authorization program.	33%
10.	Very short timeframe to develop program.	33%

n = 12 states interviewed.

Based on open-ended state Medicaid interview responses, 1994.

CHAPTER V.

FINDINGS AND POLICY IMPLICATIONS

The overall objective for this evaluation was to analyze the impact of the drug rebate program on changes in expenditures and utilization of prescribed drugs within the Medicaid programs of a selected set of states. First, an aggregate analysis of changes in drug expenditures across nearly all states was conducted using HCFA 2082 data. This analysis included computation of drug expenditures per total Medicaid recipient and per drug recipient in all states. In 27 states, drug expenditures by eligibility type were available and were also examined. The trends in expenditures over time, and components of drug program expenditures (total average payment per prescription, drug product payment, and dispensing fee payments) were estimated in both current and constant dollars. This aggregate analysis examined a long-term time frame, from 1975 through 1993, with the focus on the experience between 1989 and 1992. Medicaid drug rebates accrued and collected were examined for 1991-1993 and compared to drug expenditure trends.

Detailed Medicaid outpatient drug claims data were examined on a subset of nine states. The analysis of detailed claims data permitted controlling for Medicaid enrollment increases, mix of eligible types, price changes in drug products, and per-person utilization rates. Person-level data on eligibility types and term of eligibility were merged with claims data, pharmaceutical product, and pricing data to create a complete analysis file. Two specific six-month periods, one before and one after OBRA 90 implementation (1990 and 1992), were used for this analysis. In addition to decomposing the effects on expenditures of enrollment levels, use rates per recipient, product prices and quantity, a summary benefit ratio was developed for each state. The purpose of the benefit ratios was to compare rebate payments to changes in utilization within each state, adjusted for enrollment of various eligibility types.

Finally, the administrative cost and complexity of the rebate program were examined through interviews with twelve selected states and with HCFA representatives. Specific data on direct operational costs of the rebate program and related functions were collected from these states. Interviews were conducted with the personnel directly responsible for program implementation and covered rebate program staffing, development, implementation obstacles, and various changes needed to prescription drug benefit design. Estimates of states' costs to operate the program were developed and compared with rebate collected amounts, as reported by the states for the first three years of the rebate program.

V.A. Summary of Findings

V.A.1. Aggregate Analysis

Total Medicaid drug program expenditures grew from $4.4 billion in 1990 to nearly $8 billion in 1993 (in current dollars). The numbers of Medicaid recipients also grew, in part due to mandated eligibility expansions of OBRA 90 and other recent legislation, from 25.2 million to 32.7 million total recipients, and from 17.3 million to 23.8 million drug recipients. On a per-recipient basis, drug expenditures grew from $255 to $333, an increase of 30.5%, for those using prescribed drugs.

Before considering the impact of rebates, the drug expenditure growth rate appears substantial. However, once rebates are factored in, the aggregate analysis demonstrates that the 1993 net outpatient prescribed drug benefit program expenditures were reduced to $6.5 billion from the pre-rebate amount of $8 billion. Rebates thus constituted more than 18% of total prescribed drug expenditures in 1993. Due to the magnitude of rebate amounts, the per-recipient prescribed drug expenditure rate was about $267 in 1992 and $272 nationwide in 1993, versus approximately $256 in

1990. These figures have not been adjusted for inflation. The rebate program has slowed the growth in prescription drug payments, on a per-recipient basis, to near the general inflation rate.

When rebates are taken into account as well as enrollment growth and more general inflation, about 40 of the 50 state Medicaid programs had an average drug expenditure per recipient that was no higher in 1993 than their drug payments per recipient in 1990. This holding of expenditures per recipient essentially even over a three year period is an unprecedented change in the growth of Medicaid expenditures. The rebate program has not only lowered the level of expenditures for drugs, it has also slowed the rate of growth in prescription drug payments to near the general inflation rate in the economy.

The aggregate analysis suggested that the incremental change in drug expenditures due to the opening of drug formularies and other factors was more than outweighed by the amount of rebates collected. The rebate program was found to have a positive benefit ratio for all but one of the nine case study states. The few states which do not appear to have gained from the Medicaid program are states which have adopted, or discontinued, other pharmacy benefit management policies which appear to explain the growth of expenditures in these states. Missouri, for example, not only dropped its formulary when it implemented the OBRA 90 provisions, it also stopped its limit on number of prescriptions per recipient per month. Many other states which had operated significant formularies developed or expanded prior authorization programs, but Missouri chose not to do so. These changes in pharmacy benefit management appear to explain the dramatic growth in drug expenditures in Missouri compared with other states.

Twenty-seven states accounting for 64% of national Medicaid drug expenditures were analyzed for drug expenditures by eligibility category. Changes in the mix of recipients can influence growth in Medicaid drug expenditures. Not surprisingly, the elderly and the disabled have a much higher drug

expenditure rate than do AFDC-adults and children. In 1992, AFDC-adults had $205 and AFDC-children had $80 in per-person drug expenditures, while the elderly had $721 in drug expenditures on a per-person basis.

V.A.2. Detailed Claims Analysis on Case Study States

Detailed, person-level claims data was analyzed to determine the relative contribution of various sources to the change in drug expenditures experienced after implementation of the Medicaid drug rebate program. Several factors can account for an increase in Medicaid drug program expenditures: increases in enrollment, shifts in the mix of enrollee types, changes in number of prescriptions per patient, shifts in drug product mix, price inflation, or some combination of factors. Total drug expenditures for the nine case study state Medicaid programs between 1990 and 1992 for those drugs used in both years, grew by amounts ranging from 9.4% in Arkansas to 72% in Missouri, before accounting for rebates. The influence of enrollment increases can be minimized by examining the expenditure per enrollee per year. Although Missouri had the lowest expenditure per enrollee per year in 1990 ($192), this amount had grown to $338 by 1992.

Based on the decomposition analysis, the greatest independent effect on total drug expenditures for the case study states was due to enrollment increases, ranging from a low of a 12.2% increase in this factor for Iowa to a high of 36.6% increase in New Hampshire. Drug product prices (before rebates) also contributed a substantial amount to expenditure increases, although these effects were reduced when the effect of rebates collected was considered. There was little effect observed in the case study states from number of prescriptions used per drug recipient, and in the number of drug recipients per 1,000 eligibles, except in states making major policy changes in prescribed drug coverage restrictions (e.g., reduction in formularies, reduction or imposition of global limits on numbers of prescriptions per user).

The amount of change in drug expenditures after rebates varied widely across states, while the rebate amount as a percentage of drug expenditures was relatively stable. This suggests that the amount of variation in expenditure increases is independent of the rebate amount. A central question raised by the elimination of formularies, as mandated by OBRA 90, is how much any induced change in utilization would offset the benefits of rebate payments. A measure of differences among states was constructed to indicate the degree to which changes in utilization and expenditures were offset by the benefits of rebate payments. If the full amount of change in utilization is considered, all states except Missouri gained from the rebate program. Four of the states had modest gains - between 47 and 93 cents per dollar of additional rebates beyond the expenditures generated by changes in utilization patterns. Arkansas and Georgia did remarkably well after the rebate program, in terms of net program expenditures after controlling for enrollment and utilization changes.

V.A.3. Administrative Impact Study

A number of state Medicaid programs were selected and participated in an interview and cost data collection process that was used to assess the administrative features and costs of the rebate program. Three states were interviewed by site visits and nine were interviewed by telephone. Several items were learned from the drug rebate program's implementation that may help in the design of similar future programs. First, the state Medicaid programs had few slack resources and implemented the rebate program with minimal staff. Although the savings generated by the rebate program could have been used in part to administer the program, these savings were often simply subtracted from state appropriations to the agency. The states examined were able to achieve 80%-90% collections rates on rebates, but this did not usually occur until the program had been in operation for two to three years. Some states were still in a "catch-up" mode for rebate collections at the time of the interviews, due to limited staff time and other factors.

The second lesson to be learned is that although prescription drug products are more standardized than many health care services, development of a common nomenclature still poses problems for a national program. Although the issues of defining various drug unit types (e.g., milligrams versus milliliters of soluble powder or vials) are on the way to being solved now, these problems contributed to implementation snags for manufacturers, Medicaid staff, HCFA staff and health care providers. Information technologies could be enhanced in pharmacies to ensure accurate entry of NDC codes through use of electronic scanners, and physician office ability to check drug coverage policies online could be improved. Changes needed to the pharmaceutical benefit design when formulary changes were mandated increased the burden on providers for at least the initial period in some states, and state outpatient prescription drug program staff had to respond to numerous coverage questions during this period.

Fourth, the role of HCFA in the implementation and administration of the program was not well understood by state agencies interviewed. One of the most difficult tasks associated with the implementation of this type of program is describing how it will work to those in various state policy environments. Due to the program's extremely short time period mandated for implementation, all were attempting to implement the program using incomplete information.

The costs of the rebate program operations were minimal as a percentage of the collected amounts, usually less than 1% of collected amounts. The program, therefore, appears to be quite efficient from the financial perspective, and states seemed pleased with the revenue potential of the program. However, several of those interviewed recognized that to achieve an acceptable level of collections from all manufacturers would require resource commitments that were not yet achieved. States sought to develop strategies to enhance their utilization and claims data verification processes, as greater resources became accessible.

V.B. Limitations of the Evaluation

The findings of this evaluation of the Medicaid drug rebate program are limited by the data sources available, the time frame available for the analysis, and the methods used to collect and examine data and interpret program results. Several data sources were used and each had its own set of limitations.

The 2082 data may provide a useful basis for aggregate analysis over time and for broad trends, but cannot provide adequate analysis by eligibility groups or at the person level analysis. The 2082 data are also limited in terms of the ability to control for usage patterns by various eligibility types (not all states provide this information). The changes in expenditures per prescription observed over time represent an indistinguishable combination of changes in the mix of drugs provided and price effects.

MSIS data may also have inconsistencies from state to state. For example, different states may conduct their eligibility classifications differently for various types of persons. For the larger groups, such as AFDC-children, this is more likely to be consistent than for the smaller groups, such as the disabled and the Qualified Medicaid Beneficiaries (QMBs). The MSIS data are subject to some limitations of state drug utilization data, as are the rebate files, since both are based on claims filed and paid. However, the quantity measures in MSIS are less sensitive than the rebate files to differences from state to state, since MSIS represents quantity through number of prescriptions, rather than numbers of drug "units" (tablets, etc.). The quality and utility of prescribed drug claims data in the MSIS system could be greatly improved if the quantity data (i.e., number of tablets, capsules, or milliliters) from the original prescription was preserved on the claim record. Even better would be the retention of the standard NCPDP (National Council of Prescription Drug Programs) uniform data set for prescriptions processed through electronic data interchange.

The time frame for evaluation of the program was limited. Only one time period before OBRA 90 and one time period after OBRA 90 was used for the detailed claims analysis. Only three years of operational experience post-OBRA 90 could be evaluated in other parts of this analyses using 2082 data and rebate files. The longer-term experience of this rebate program should be evaluated to determine the effect of major shifts in the market place. Changes such as pharmaceutical company mergers and Medicaid waivers and moves to managed care may have a significant effect on the effectiveness of the drug rebate program. In terms of the claims data analysis, large shifts in utilization of various NDCs over time limited the analyses that could be conducted on the changes over time.

The methods used for the administrative impact study were subject to several limitations. In collecting interview data directly from states and HCFA, these data always are subject to respondent recall, and represent the unique perspective of each person interviewed.

V.C. Future Research Needs

The possibility that increased drug utilization and expenditures in some states, such as Missouri, that essentially de-regulated pharmaceutical benefits could have led to declines in utilization of other types of health care services should be investigated. The impact on physician services, hospitalizations, etc. should be evaluated and was not included in the scope of work for this project.

A large number of new NDCs for already existing drug chemical entities were observed in the analysis files and contributed a great deal to the large shifts in expenditures from the set of NDCs used pre-OBRA 90 to those used post-OBRA 90. The reasons for the development of this large number of new NDCs need to be investigated: are they due to the development of repackaging firms, to cross-licensing of products, to changes in drug manufacturer "identity" due to purchase or mergers, or some other causes, such as new dosage forms for existing products?

Greater study should be devoted to the changes in formulary and prior authorization programs and in global prescription number limits over time, and how access has been affected by these changes. This should be accomplished through both a broad-based study of the changes in these programs nationwide over the long term, and more intensive review of several states' experience with expanding or contracting the number and types of drug products subject to restrictions.

The development of global limits by states on numbers of prescriptions paid for various types of persons should be further examined. Although these limits are usually applied only to non-institutionalized adults, little work has been done on their effects on persons with various types of medical conditions or on persons with multiple diagnoses. In Arkansas, these limits appeared to reduce outpatient prescribed drug expenditures, but an examination of the impact on utilization of other health care services seems warranted.

The calculation of the average manufacturer prices (AMPs) by manufacturers, and the consistency in such calculations from manufacturer to manufacturer should be examined. The OIG has conducted only a few intensive, yet limited audits of pharmaceutical manufacturers. Manufacturers continue to submit revisions to their calculated rebate rates developed considerably earlier.

The methods used by states to verify and modify claims and utilization data, in response to requests for more information or disputes of rebate amounts due, should be studied. Which methods are more effective for verifying utilization data and for efficiently collecting rebates, and why?

V.D. Implications for Policy

Medicaid exists in a very complex policy and political environment. Many changes to Medicaid occur simultaneously making evaluation of individual changes difficult. To the extent that the rebate program helped to partially enable the financing of an expansion in Medicaid eligibility for certain populations including AFDC children and pregnant women, the rebate program appears to have succeeded. The number of Medicaid enrollees has certainly grown since 1990 and the trend line for drug program expenditures has been significantly lowered after accounting for rebates.

There are a number of policy implications raised by the drug rebate program and its current operation. First, both state and federal agencies continue to report their drug expenditures using the drug payments made without reflecting the receipt of rebate payments in the drug expenditure and total program statistics. This lack of transparency for rebate dollars can lead to a failure by policymakers to appreciate the substantial reduction in total drug expenditures achieved through the Medicaid drug rebate program.

Many state Medicaid programs have become dependent upon the revenue generated by the drug rebate program. Any major change in the rebate program would have a significant fiscal impact on state budgets. Some states place the drug rebate amounts directly into the general revenue fund, while others put the rebate funds directly back into the Medicaid program. A state would have to use additional general revenue dollars, cut eligibility, cut services, or cut payments to providers and producers to accommodate for a reduction in rebate payments. None of these changes is easy to accomplish in the current economic and policy environment.

As states consider alternative means for delivery of efficient and effective health care to the Medicaid population they must not overlook the role of the drug rebate program. In evaluating the cost of a managed care plan's coverage of prescription drugs as part of a comprehensive health benefit plan for Medicaid recipients, the role of rebate revenues should be considered. In most cases, when patients are shifted to managed care, the state Medicaid program does not directly receive rebates. While many managed care plans do receive rebates from drug companies, the value of these rebates to the state Medicaid program will not be realized unless they are passed on to the state as lower premiums or as separate payments based on utilization.

The Medicaid drug rebate program appears to have been a successful approach to managing the growth in drug expenditures over its first few years of operation. After accounting for other Medicaid program changes, the growth of Medicaid drug expenditures has slowed considerably, and the net drug program expenditure for most states is substantially lower than otherwise expected because of the rebate program.

Appendix Table Explanations

APPENDIX TABLE EXPLANATIONS

This appendix describes a series of ten descriptive tables that form the statistical basis of the analysis of the Medicaid claims files used in the report. A full listing of tables is attached at the end of the descriptive notes in this appendix. For convenience, the more extensive tables (Tables 5-10) are bound separately, with sample pages included in this appendix.

The first three tables relate to the data actually used for the study. They summarize the Medicaid data sets for the study states, display the various exclusions employed, and estimate the degree of error in our proxy measures of price and quantity. The subject matter shifts with Table 4, which lists total expenditures, enrollment and users in the nine states for each of the two years. The next six tables describe *changes* in pharmaceutical expenditures. These tabulations are repeated for each state and use two basic formats--one for Tables 5 to 8 and a second for Tables 9 and 10. The two formats differ primarily in the NDCs included in the analysis.

The first format includes all National Drug Codes (NDCs) prescribed in a state, even if they were prescribed only in 1990 or in 1992. Tables 5 to 8 focus on the dollar amounts of expenditures in the two years and describe sources of change in terms of the degree that rebate payments offset increases in different categories of drug expenditures. In contrast, the second format covers only those NDCs that were used in **both** 1990 and 1992. With this restriction, it is possible to compare relative percentage changes in prices, utilization and enrollment growth.

The remainder of this exposition describes each of the tables with explanations of definitions and calculations. The table descriptions are organized into four areas: characteristics of the MSIS drug claims files, summary of total expenditures, analysis of total expenditures, and analysis of rates of change.

A. CHARACTERISTICS OF MSIS DRUG FILES

The Medicaid Statistical Information System (MSIS) maintained by HCFA seeks to expand the number of states with comparable person-level claims data. If states submit their enrollment and claims files according to a standard format and pass basic edit screens, they are exempt from submitting form 2082 reports of Medicaid use and cost. The system is still evolving, and the data for each state has to be carefully screened for completeness and valid codes. Four tables summarize the quality of the data used for this report.

1. Table 1: Comparison of State MSIS Data Characteristics

The selection of states included for study depended primarily on the availability of high quality claims data from HCFA's MSIS files for 1990 and 1992. This initial table displays key characteristics of 21 different states for the two study quarters (quarters 3 and 4) for 1990 and 1992. The columns display the scope of drug claims covered in each quarter, starting with "Other Claims" in column 1. This category covers not only prescriptions, but, according to the MSIS file description, ". . . all Medicaid claims that are not included in either the inpatient or long term care files." These include physician visits, home health, HMO premiums, outpatient department visits and procedures, medical devices and lab and X-ray claims.

Column 2 displays the number of claims for pharmaceuticals (indicated by data in the field for NDC code) as a subset of "Other Claims". The proportion of records counted as drugs varies among states and from quarter to quarter from over 50 percent to one-third. The unusually low proportions for some states such as Alaska may indicate that the state is phasing in the substitution of NDC for state-specific codes during 1990.

The third column counts the number of unique drug codes reported by each state. (Note that this count can include invalid codes since at this point the files have not been merged to the First DataBank files in order to check for valid codes.) The final two columns then calculate the number of unique codes that account for the top 40 and 80 percent of all claims in column 2. The numbers in these columns tend to differ less than the total number of unique NDC codes. For example in Indiana, approximately 380 codes cover 40 percent of all claims that encompass over 24,000 unique codes. In Kansas, the 40 percent mark is covered by 240 codes; but the total number of unique codes is half that in Indiana. In sum, states appear to differ most in the large numbers of low-use NDCs.

2. Table 2: Analysis of Drug Claims Included in the Study Data Set

The purpose of this table is to trace the impact on estimated total prescription expenditures of eliminating records from the Medicaid drug files. In developing the data sets used for this study, data difficulties required deleting specific groups of records. We tracked the impact of these deletions not with the number of claims but the total expenditures for them. The table limits the states listed to the nine final study states. The two panels, Table 2.A and Table 2.B, separately cover 1990 and 1992.

Column 1 displays the total drug expenditures by quarter listed in the states' 2082 reports. Column 2 indicates the total expenditures for the year and by quarter for non-empty NDC codes (i.e., it uses the same definition as column 2 of Table 1). For states with complete data, the amount in column 2 tends to be slightly higher than column 1. Column 3 eliminates all records where the NDC code does not match an entry in the First DataBank (FDB) inventory of drug codes. Column 4 further adjusts the information by constructing six-month date-of-service files (three-month files for Georgia and Washington) by: (1) deleting all prescriptions filled prior to the observation period, and (2) adding records from the quarterly file following the observation period that were filled during the six months in question. The final three columns indicate the reductions in total expenditure by eliminating those

claims where the individual was not in the enrollment file (or enrolled in an HMO), the NDC did not

have pricing data on the FDB, or the NDC was not on the rebate file, and therefore could not

participate in the program. In most case the reductions from these three exclusions are minor. Indiana

appears to be high with an 8 percent change.

3. Table 3a: Estimated Errors in the Calculation of Changes in Price and Quantity, 1990-1992

The MSIS claims files contain neither the quantity of medication dispensed nor the price paid. The

study therefore relies on surrogate measures of these two key variables. Prices are taken from a

commercial data file, The First DataBank, and are specified as the average wholesale price (AWP) as

of June 1990 and 1992. If an NDC was subject to either federal or state maximum allowable cost

(MAC) limits, the lower amount was substituted for AWP. Lacking information on quantities prescribed

in the claims files (the units in which prices are stated), we substituted the rate of change in number of

prescriptions, a procedure that assumes that the number of units per prescription remains the same

between 1990 and 1992.

The results are therefore subject to inherent measurement errors in price and quantity. We may

be unable to accurately account for changes in expenditures due to the lack of information on changes

in dispensing fees, misstatement of the effective price, and the fact that the number of prescriptions

may be an imperfect surrogate measure of changes in the number of units. Table 3.A estimates the

degree of error by measuring the deviations between observed expenditures and those implied by the

measures of price and quantity. That is, if price and quantity were measured correctly, $y = p + q + p*q$,

where p, q, and y indicate percentage rate of change of price, quantity and expenditure. Error due to

mismeasurement of price and quantity changes can therefore be measured as the percent by which

observed changes in expenditures differs from the growth in expenditure implied by changes in price

and quantity--i.e. $(((p + q + pq)/y) - 1)$. Note that this measure does not indicate whether the difficulty

lay in the measure of price or quantity only that together they do not equal observed growth of expenditures.

In Table 3.A, lines 1 and 2 indicates the proportion of all NDCs in each state used in both 1990 and 1992 for which the error is greater and lesser than 50 percent. For example, in Iowa, 20.5 percent of the 4,135 drug codes prescribed in both years had implied expenditure growths at least 50 percent less than observed. Another 17.9 percent had implied growths at least 50 percent in excess of observed. Together, 38.4 percent of NDCs were in error by more than 50 percent.

It is possible that the large deviations are due to numerous low-volume NDCs, for which the number of dispensed units per prescription in any one year are subject to substantial random variation. The fourth line of Table 3.A checks for this by calculating the percentage of total 1990 expenditures due to payments for NDCs with errors greater or less than 50 percent. In general, one-quarter of drug expenditures are for NDCs where the correspondence between the components and the total is poor. For most states line 4 equals approximately 75 percent of line 3, which is the sum of lines 1 and 2. This indicates that some, but by no means the majority of the error is due to unusually low volume NDCs. There are, however, distinct differences among states. The 28.0 percent of expenditures for Arkansas is equal to 88.6 percent of expenditures; the 19.4 percent of expenditures in Kansas amount to only 56.6 percent of line 3. The latter suggests that in this state a large number of very low-volume NDCs are responsible for almost half the high error drugs.

4. Table 3.B: Interstate Consistency of Errors in
Measurement of Price and Quantity, Iowa and Georgia, 1990-1992

The fact that the proportion of high error NDCs is fairly constant across states suggests that there may be a consistent problem with a particular subset of NDCs. If this is the case, then the

error may involve a consistent misstatement of effective price rather than problems with prescriptions as a measure of quantity. Table 3.B explores this possibility by examining the consistency of error between two states, Iowa and Georgia (selected because of large differences in the proportion of high-error NDCs). The five lines divide NDCs into five groups according to the degree of error. (Lines 1 and 5 correspond to lines 1 and 2 for Iowa in Table 3.A.) The first of the four columns for Georgia indicate the number of Iowa NDCs that also appear in Georgia. Overall, of the 4,135 Iowa NDCs, 2,804 (67.8 percent) also were prescribed in Georgia. The proportion was slightly lower for the high error NDCs. The last three columns distribute these jointly used NDCs according to their classification in Georgia. For example, of the 848 NDCs in Iowa where implied expenditure growth was 50 percent less than observed, 521 were also prescribed in Georgia. Of these, only 99 (19.0 percent) also had errors of -50 percent. Indeed, 230 NDCs, (44.2 percent) had errors with the opposite sign in Georgia. The patterns strongly suggest that only a small portion of the NDCs are consistently in high error across the states. Hence, most of the large errors appear to be due to varying mismeasurement of quantity rather than consistent mistaken specification of price. (Misstatement of state-specific MACs could introduce an additional source of error, but only two of the nine states are known to use MACs that are lower than the federal MACs.)

B. TABLE 4: TOTAL DRUG EXPENDITURES, ENROLLEES, AND RELATED MEASURES BY STATE AND ELIGIBILITY CATEGORY

This table displays separately for 1990 and 1992 five basic descriptive statistics--total expenditures, total enrollees, number of prescriptions, expenditures per prescription and expenditures per enrollee. Of these columns, note should be taken of the calculation of total enrollees. Using the annual enrollment files for each year, we identified all individuals enrolled for at least one month of the observation period. These records were then adjusted for the fact that some were enrolled for less than the full six months (three months in the case of Georgia and Washington, for which enrollment of

each individual is calculated as the fraction number of months enrolled divided by three). In most Medicaid tabulations covering a full twelve months, this type of standardization is known as "person years". For this study, enrollment is calculated as "person-half-years" or "person-quarters". All tabulations using enrollment are made as if the study population was enrolled full time.

C. TABULATION OF CHANGES IN EXPENDITURES, 1990 - 1992

Tables 5, 6, 7, and 8 all use the same format, which displays changes in : 1) total expenditures for drugs in 1990 and in 1992, and 2) expenditures net of calculated rebate payments in 1992. The tabulations further break out expenditures on those drugs which were used in both 1990 and 1992 (the utilization and expenditures for these drugs are explored in greater depth in Tables 9 and 10), compared to those for drugs that are used in only one of the study years. Separate tabulations are made for each state.

1. Table 5: State Summary of Changes in Drug Expenditures

In Table 5, which summarizes total expenditures for each state, section I shows total expenditures for drugs as summed from the claims data. Section II shows total rebate payments, for which the state was eligible. Section III shows total expenditures with eligible rebates subtracted (e.g., "expenditures net of rebate").

The rows in Sections I and III include all drugs and are defined as follows:

* *"Total Expenditures, of which"*--the sum of all Medicaid payments (including dispensing fee), of which all subsequent rows are components.

* *"NDCs used in 1990 only"*--total expenditures for those NDCs that were used in this state in 1990 only. The NDCs included in this category vary from state to state.

- *"NDCs used in 1992 only, of which"*--total expenditures for NDCs which were used in this state in 1992 only, of which the next three rows are components.

  - *"Previously available NDCs"*--of the 1992-only NDCs, expenditures for NDCs that were available for prescriptions in 1990, although not used in this particular state. They are defined using the First DataBank files to determine if the NDC existed at the end of 1989.

  - *"New NDCs for existing drugs"*--of the 1992-only NDCs, expenditures for NDCs that did not exist in 1990, but where the generic sequence number (GENSEQ, a unique code for a drug entity, strength, and dosage form) exists on FDB files at the end of 1989.

  - *"New drugs"*--of 1992 only NDCs, expenditures for "new drugs," defined as NDCs that did not exist in 1990 and for which the GENSEQ number also did not exist in 1990. A new drug would therefore be either a new drug entity or a new dosage form or strength for an existing drug entity.

- *"NDCs used in 1990 and 1992"*--total expenditures for NDCs that were used in this state in both 1990 and 1992. These drugs are the universe further analyzed in Tables 9 and 10.

Note that in developing this classification, the treatment of non-innovator multiple source (NMS, i.e. "generic") drugs differs somewhat from that of single source (SS) innovator multiple source (IMS) and over the counter (OTC) prescriptions. Since NDCs for the same NMS drug from different manufacturers are substitutes, all those belonging to the same GENSEQ code were aggregated to a single record. That is, we grouped together all the NDCs of NMS drugs with the same drug entity, strength, and dosage form (but having different manufacturers). NMS drugs are therefore reported at the aggregated GENSEQ level. Prices were calculated as weighted averages of component NDC prices. This aggregation means that we assigned NMS drugs on a different basis to the lines in Table 5. All NMS drugs with a GENSEQ number that did not exist in 1990 were assumed to be existing drugs with new NDCs. By definition, none were defined as "new drugs." It is possible that some would be more properly defined as available NDCs not prescribed in 1990. The difference in the exact definitions for NMS drugs are as follows:

- *"NDCs used in 1990 only"*--total expenditures for GENSEQs that were used in this state in 1990 only.

- *"NDCs used in 1992 only, of which"*--total expenditures for GENSEQs that were used in this state in 1992 only, of which the next three rows are components.

  - *"Previously available NDCs"*--of the 1992-only NMS drugs, expenditures for those with GENSEQs that did not exist on 1990 FDB files.

  - *"New NDCs for existing drugs"*--of the 1992-only NMS drugs, expenditures for GENSEQs that existed on the 1990 FDB files, but not those with 1990 utilization in this state.

  - *"New drugs"*--no NMS drugs are reported here.

- *"NDCs used in 1990 and 1992"*--total expenditures for NMS drugs with GENSEQs that were used in this state in both 1990 and 1992.

The rebate amounts shown in Section II are calculated for the observation period in 1992 using information in the quarterly rebate files maintained by HCFA. These files list for each NDC the rebate due per unit, total units, total Medicaid payments, and total potential rebates per quarter that can be claimed by each state. This information was used to calculate, state by state for each NDC, the ratio of potential rebates per dollar of Medicaid payments for claims. This ratio was then multiplied by Medicaid payments aggregated from the MSIS files for prescriptions filled during the observation period. Note, however, that states differ in the degree to which they actually receive potential rebate payments.

The columns on Table 5 are straightforward and are defined as follows:

- *"1990"*--expenditures from the 1990 study period.

- *"1992"*--expenditures from the 1992 study period.

- *"Amount Change"*--expenditures in 1992 study period less expenditures in 1990 study period.

- *"Percent of Total Change"*--for Sections I and III, the percentage contributions of different lines to total change are indicated in this column. These shares total to 100 percent as represented by the 100% label for the totals of the two sections.

- *"1990 to 1992 Percent Change"*--amount of change in row 4 divided by expenditure in 1990, shown as a percent. This percent change is shown only for rows with expenditures in both 1990 and 1992 columns.

2. TABLE 6: Changes in Drug Expenditures Controlling for Enrollment

This table replicates the results in Table 5 but adjusts the results for changes in enrollment. Between 1990 and 1992 most states experienced rapid changes in enrollment, as all elements of the Congressionally mandated Medicaid expansions were being implemented. Drug expenditures are likely to have changed solely as a result of the often dramatic changes in enrollment patterns

All elements in the Table remain the same as in Table 5, except for the calculation of 1992 expenditures. There are three panels for each phase of this table: (1) baseline--no adjustment, (2) adjusted--net of enrollment growth, and (3) adjusted--net of enrollment growth and shifts in use rate. This series is repeated five times, one for all enrollees and again for each of the four aggregated eligibility groups. In sum there are 15 panels for each state.

To calculate the three versions we use the following accounting for expenditures in 1992:

Total Expenditure 92 =

      Expenditure per User 92 * Users per 1,000 Enrollees 92 * Number of Enrollees 92

The baseline panel uses all 1992 variables and thus duplicates the results in Table 5. (For example, the baseline change of $6.1 million in Arkansas, panel 1, line 1 is the same as the total change in line 1 of Table 5.) The second panel adjusts for enrollment growth by asking, "What if 1992 use patterns were the same as in 1990 but states had 1990 enrollment?" The number of 1990 enrollees in each eligibility category therefore replaces the 1992 counts and are then multiplied by the 1992 ratio of users per enrollee. The third panel carries this substitution process a step further and asks, "What if in 1992 we had not only 1990 enrollment but 1990 use rates?" This adjustment can only be applied to those drugs used in both 1990 and 1992. Those from 1990-only are excluded; those from 1992-only are valued at the 1992 rate.

The baseline and two adjustments are applied to all enrollees and to each of four eligibility groups. The eligibility groupings do not, however, follow standard Medicaid eligibility categories and are defined as follows:

- *Aged*--all individuals 65 and over regardless of their specific eligibility category. They may be on either cash or non-cash assistance.

- *Blind and Disabled*--all individuals eligible by reason of being blind or disabled.

- *AFDC/Poverty Related Adults*--all those from 21 to 64 years of age who are not included in the Blind and Disabled group. The group consists predominately of those on AFDC and eligible under the newer poverty-related standards of the mandated expansions.

- *AFDC/Poverty Related Children*--all those under 21 who are not included in the Blind and Disabled group. The group consists predominately of those enrolled in AFDC and eligible under the newer poverty-related standards of the mandated expansions.

It is important to note that Table 6 for Kansas has been excluded. This is because the enrollment data for Kansas is defective (apparently not all the quarterly enrollment files were included.) As a result, Kansas shows a major reduction in enrollment, and consequently large and invalid differences between the baseline and enrollment-adjusted panels.

3. Table 7: Changes in Drug Expenditures by Patent Status

The changes in state expenditures shown in Table 5 are disaggregated here by drug patent status, starting with the four basic categories described previously--SS, IMS, NMS, and OTC drugs. This classification is complicated by the need for additional categories to cover those NDCs that changed patent status between 1990 and 1992. More importantly, the tabulations are repeated for "new" NDCs compared to those previously available at the end of 1989.

In total, there are 12 panels or repetitions of Table 7 for each state. The panels are mutually exclusive and add up to the total expenditure shown in the first panel. The total for each of the four basic categories of patent status can be summed from the disaggregated panels. For example, SS

drugs are shown in two panels in Table 7--"Single Source in 1990 and 1992" and "New Single Source Since 1990". Alternatively, IMS drugs appear in three panels--"Innovator, Multiple Source in 1990 and 1992," "Single Source to Innovator," and "New Innovator Multiple Source."

Total expenditures net of rebates for "New Single Source Since 1990" (e.g., those that were not available in 1989) can be divided between those for truly "new" drugs and those for new NDCs for existing drugs as shown on the panel in Table 7 entitled, "New Single Service Drugs Since 1990." In Arkansas, for example, new NDC's for existing drugs in 1992 totalled $1.25 million, while new drugs equalled $1.22 million. Surprisingly, a significant share of expenditures net of rebates for New Single Source drugs (ranging from 41 percent in Georgia to 76 percent in New Hampshire) were from the category of "new NDCs for existing drugs."

4. Table 8: Changes in Drug Expenditures by Therapeutic Category

In Table 8, the format introduced in Table 5 is repeated here for each of 48 therapeutic categories. These categories were constructed by the Project Director, Dr. Stephen Schondelmeyer, by aggregating low-use categories included in a classification developed by First Databank and coded onto each NDC record in its computerized file. Drugs that have more than one therapeutic use are assigned to the category associated with clinical judgements of its most frequent use.

C. ANALYSIS OF PERCENTAGE RATES OF CHANGE

Analysis of percentage rates of change requires that the drugs be restricted to the subset of NDCs that appear in a state's Medicaid claims in both years. The relative size and importance of this group can be determined by reference to Table 5. Rather than absolute amounts, the tables calculate percentage changes for total expenditures and four components of change--price inflation, proportion of

enrollees using the drug, the average number of prescriptions per user and Medicaid enrollment. The tables do not indicate the level of any of these components in any one year, only their percentage changes.[1]

1. Table 9: State Summary of Decomposition of Change in Drug Expenditures

This table averages across all NDCs prescribed in both 1990 and 1992 (the list differs among states). In addition to the four components of expenditure increase, the table also calculates the impact of rebate payments, first by netting their effect out of total payments and then by recalculating the rate of price inflation exclusive of rebate payments. The columns for Table 9 are as follows:

- *Total Drug Expenditures*--the percentage change in total Medicaid payments for the NDCs included in the study. The rates are not annualized.

- *Expenditures Net of Rebates*--recalculates column 1 after first subtracting estimated rebate payments from 1992 expenditures.

- *Prices*--price inflation as measured by the percentage changes in the prices of included NDCs weighted by their share in total 1990 expenditures. This weighted sum is identical to a standard Laspeyre price index. Prices are measured using computerized information from the First Databank files as described in the notes for Table 3A and Table 5.

- *Prices Net of Rebate*--the difference between columns 1 and 2 adjusted and subtracted from column 3. Since rebate payments are functionally a discount on price, the size of the rebates can be measured by subtracting their effect from the price. The indicated impact on prices (column 4 minus column 3) will be smaller than the impact on total expenditures (column 2 minus column 1). This is because some of the price effect will occur in the interaction of the different components of change that are not shown. Errors in the measurement of quantity will affect the accuracy of this column.

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[1]Ideally, for any single NDC, the percentage change in expenditure should equal the sum of the percentage changes of its components plus the sum of cross-products. For example, $y = p + q + p^*q$, where y, p, q are rates of change in expenditure, price and quantity. With the four factors in Table 9, there are 11 cross-product terms. When summing across NDCs, these cross-product terms must also be weighted, as in the calculation of the overall rate of growth of prices. As illustrated previously in Tables 3A and 3B, errors in the measurement of changes in price and quantity introduce error in this decomposition. There is some evidence that most of the error is due to over- and under-estimates of the actual change in quantity prescribed.

- **Use Rate**--the percentage shift in the ratio of drug users per 1,000 enrollees, controlling for changes in the mix of NDCs and overall enrollment. This change is calculated for each of four eligibility groups for each NDC. The index score for each NDC is the sum of the changes in use rate for each eligibility group weighted by its 1990 share among the NDC's total users. The overall index is the weighted sum of the NDC scores, using the same 1990 expenditure weights as in the calculation of price increases in column 3.

- **Intensity**--the percentage change in the number of prescriptions per user. As in the case of the use rate, an index of change starts with the shift in intensity for each eligibility group among each NDC. The overall index is constructed by weighting these shifts by the share of users in each NDC and the NDC's share in overall expenditures. The change is thus measured controlling for changes in enrollment composition and mix of NDCs.

- **Medicaid Enrollment**--an index of the impact on expenditures of the growth and shift in enrollment composition. Growth in the number of enrollees is weighted by their 1990 shares of total expenditures.

The first row of Table 9 covers the 1990-1992 percent changes for the NDCs prescribed in both years in a state. The percentage change in column 1 corresponds to the last column of line 7 in Table 5. (For example, in Arkansas NDCs used in both years increased by 9.4 percent.) The following four rows cover aggregated Medicaid eligibility categories, as described in our description of Table 6. The interpretation and calculation of the columns for each of the eligibility groups is the same except that the percentage changes are calculated on the basis of the utilization and weights of only those individuals in a specific eligibility category. For example, the weights for the aged are the proportion of the NDC in total expenditures by the aged in 1990.

It is important to note that the enrollment data for Kansas is defective (apparently not all the quarterly enrollment files were included.) As a result, Kansas shows a major reduction in enrollment. Only the first four columns of the table are valid.

2. Table 10: State Summary of Decomposition of Rates of Change in Drug Expenditures by Therapeutic Category

The changes illustrated in Table 9 are repeated in Table 10 except that the state totals are broken down by therapeutic class. These classes are described in the notes for table 8. For each class we have, by way of illustration, included one or more common, example drugs. Note that Table 10 drops the measure of prices net of rebate. This is because the relative inaccuracy introduced by mismeasurement of price and quantity increases as the number of prescriptions considered declines. See Tables 3A and 3B for estimates of this error. In addition, as noted in the descriptions for Table 6 and Table 9, the Kansas enrollment data is defective, so that only the first three columns of the state's table are valid.

Appendix Tables

Appendix Table 1

Comparison of State MSIS Data Characteristics

APPENDIX TABLE 1

COMPARISON OF STATE MSIS DATA CHARACTERISTICS

States by Fiscal Year/Quarter	Number of Records in MSIS "Other Claims" File	Number of records in MSIS "Other Claims" File with Data in the Drug Code Field	Number of Unique Codes in Drug Code Field	Number of Unique Codes in Drug Code Field which Account for:	
				Top 40% of Claims	Top 80% of Claims
Alabama					
90Q3	2,166,167	1,090,919	4,499	73	N/A
90Q4	2,059,757	932,833	4,486	73	433
92Q3	N/A	N/A	N/A	N/A	N/A
92Q4	2,865,398	1,221,880	15,717	239	2,030
Alaska					
90Q3	291,520	81,052	5,191	179	N/A
90Q4	237,434	67,858	4,929	164	1,172
92Q3	N/A	N/A	N/A	N/A	N/A
92Q4	359,918	104,399	5,727	185	1,267
Arkansas					
90Q3	1,930,087	834,375	15,161	258	N/A
90Q4	1,874,795	801,314	15,015	246	2,239
92Q3	2,820,586	825,089	14,470	248	2,168
92Q4	2,400,771	756,703	14,248	239	2,136
Delaware					
90Q3	221,792	0	0	0	N/A
90Q4	104,469	49,996	5,081	220	1,416
92Q3	N/A	N/A	N/A	N/A	N/A
92Q4	351,175	130,509	7,704	258	1,763
Georgia					
90Q3	5,109,706	2,079,934	17,354	211	N/A
90Q4	5,514,494	2,114,954	18,627	191	1,996
92Q3	6,574,240	2,361,449	18,025	234	2,023
92Q4	6,641,187	2,279,824	17,386	240	1,978
Hawaii					
90Q3	666,551	261,054	8,162	204	N/A
90Q4	659,313	261,559	8,608	219	1,584
92Q3	N/A	N/A	N/A	N/A	N/A
92Q4	879,466	337,789	8,780	213	1,538
Indiana					
90Q3	3,264,091	1,671,360	24,241	399	N/A
90Q4	3,551,501	1,728,378	23,850	381	3,064
92Q3	5,144,506	2,274,407	24,178	377	2,961
92Q4	5,208,973	2,434,554	24,067	372	2,884

TABLE 1 (*continued*)

States by Fiscal Year/Quarter	Number of Records in MSIS "Other Claims" File	Number of records in MSIS "Other Claims" File with Data in the Drug Code Field	Number of Unique Codes in Drug Code Field	Number of Unique Codes in Drug Code Field which Account for:	
				Top 40% of Claims	Top 80% of Claims
Iowa					
90Q3	1,816,653	754,201	15,691	252	N/A
90Q4	1,765,774	771,024	15,902	248	2,179
92Q3	2,379,699	910,382	15,606	252	2,058
92Q4	2,266,261	881,462	15,691	253	2,102
Kansas					
90Q3	1,196,404	453,892	9,684	201	N/A
90Q4	1,199,138	443,665	10,001	204	1,653
92Q3	1,577,534	599,340	12,401	233	1,852
92Q4	1,559,373	571,465	12,529	245	1,882
Kentucky*					
90Q3	3,305,994	1,068,618	11,759	220	N/A
90Q4	4,077,646	1,602,902	6,764	62	691
92Q3	6,243,585	2,452,551	17,734	140	1,809
92Q4	5,564,753	2,378,858	17,686	145	1,822
Maine					
90Q3	1,238,786	415,120	9,312	192	N/A
90Q4	1,239,940	412,692	9,255	185	1,453
92Q3	1,575,541	492,358	9,272	181	1,378
92Q4	1,394,300	483,632	9,340	186	1,391
Missouri					
90Q3	3,613,968	1,215,227	13,251	203	N/A
90Q4	3,624,279	1,304,294	13,374	200	1,788
92Q3	5,800,263	2,171,314	21,228	283	2,535
92Q4	6,556,080	2,397,538	20,789	286	2,511
Montana					
90Q3	457,224	164,805	10,245	312	N/A
90Q4	467,463	182,066	10,242	299	2,304
92Q3	527,055	188,282	10,167	281	2,133
92Q4	485,759	180,435	9,938	261	2,068
Nevada					
90Q3	343,875	343,874	12,031	88	N/A
90Q4	298,814	298,814	12,505	97	1,425
92Q3	N/A	N/A	N/A	N/A	N/A
92Q4	525,873	525,872	7,817	N/A	83
New Hampshire					
90Q3	411,539	183,500	9,657	250	N/A
90Q4	493,117	190,073	9,650	247	2,026
92Q3	686,292	277,429	10,519	273	2,001
92Q4	758,871	257,155	10,138	266	1,935

TABLE 1 (*continued*)

States by Fiscal Year/Quarter	Number of Records in MSIS "Other Claims" File	Number of records in MSIS "Other Claims" File with Data in the Drug Code Field	Number of Unique Codes in Drug Code Field	Number of Unique Codes in Drug Code Field which Account for:	
				Top 40% of Claims	Top 80% of Claims
North Dakota					
90Q3	432,223	136,016	7,247	206	N/A
90Q4	447,349	167,760	7,482	192	1,517
92Q3	N/A	N/A	N/A	N/A	N/A
92Q4	473,483	162,489	7,245	199	1,447
Utah					
90Q3	909,985	280,717	10,278	283	N/A
90Q4	887,320	270,394	10,210	273	1,898
92Q3	1,061,279	390,645	11,020	262	1,851
92Q4	1,061569	385,086	11,001	251	1,807
Vermont					
90Q3	323,141	98,270	6,368	183	N/A
90Q4	729,885	305,199	7,744	177	1,362
92Q3	734,626	240,058	7,563	217	1,461
92Q4	782,163	253,343	7,486	213	1,446
Washington					
90Q3	3,883,377	1,376,855	16,815	284	N/A
90Q4	3,719,218	1,145,540	16,427	299	2,254
92Q3	5,072,859	1,608,717	16,357	291	2,023
92Q4	5,023,495	1,602,463	15,175	249	1,882
Wisconsin					
90Q3	4,089,514	1,380,814	8,359	157	N/A
90Q4	4,357,345	1,363,310	8,322	155	931
92Q3	4,828,052	1,538,146	17,230	327	2,552
92Q4	5,023,495	1,529,055	17,275	314	2,550
Wyoming					
90Q3	178,188	75,736	2,078	62	N/A
90Q4	204,268	71,195	2,090	63	415
92Q3	N/A	N/A	N/A	N/A	N/A
92Q4	207,495	72,417	6,501	231	1,675

*314,475 records all '999999999999', NDCs all 12 digits long

Appendix Table 2.a.

Analysis of Drug Claims Included in the Study Data Set, 1990

APPENDIX TABLE 2.A

ANALYSIS OF DRUG CLAIMS INCLUDED IN THE STUDY DATA SET, 1990
(in dollars)

State	Total Drug Expenditures on 2082	Total Expenditures on MSIS Claims with Something in NDC Field	Total Expenditures on Claims Where NDCs Match to FDB NDCs	Expenditures on Claims with Date Filled During Drug Study Period and Adjusted Claims Eliminated (Length of Study Period)	Expenditures on Study Claims for Enrolled Individuals	Expenditures on Claims with Pricing Data on FDB Files	Expenditures on Claims for Drugs with Rebate Amount on Rebate File
Arkansas (AR)	57,227,472	57,426,349 13,251,206 (1) 14,975,737 (2) 14,714,503 (3) 14,484,903 (4)	43,768,568	28,758,219 (6 months)	28,684,715	28,633,302	27,771,519
Georgia (GA)	143,999,753	74,718,061 * (1) * (2) 37,073,985 (3) 37,644,076 (4)	73,655,502	34,419,284 (3 months)	34,230,811	34,216,751	33,538,722
Iowa (IA)	52,962,760	54,461,962 12,378,751 (1) 13,898,828 (2) 13,695,932 (3) 14,488,451 (4)	41,822,507	27,285,966 (6 months)	27,278,550	27,248,792	26,710,884
Indiana (IN)	113,619,942	117,730,000 27,448,183 (1) 29,913,755 (2) 29,275,188 (3) 31,090,122 (4)	83,472,331	53,862,819 (6 months)	53,733,183	53,712,062	49,628,720
Kansas (KS)	29,712,915	30,352,859 6,653,639 (1) 8,178,682 (2) 7,716,618 (3) 7,803,920 (4)	23,116,280	14,774,851 (6 months)	14,735,557	14,706,099	14,050,052
Missouri (MO)	63,744,620	40,429,034 * (1) * (2) 19,103,321 (3) 21,325,713 (4)	39,473,110	19,710,084 (3 months)	19,134,825	19,124,084	18,680,692

TABLE 2.A (*continued*)

State	Total Drug Expenditures on 2082	Total Expenditures on MSIS Claims with Something in NDC Field	Total Expenditures on Claims Where NDCs Match to FDB NDCs	Expenditures on Claims with Date Filled During Drug Study Period and Adjusted Claims Eliminated (Length of Study Period)	Expenditures on Study Claims for Enrolled Individuals	Expenditures on Claims with Pricing Data on FDB Files	Expenditures on Claims for Drugs with Rebate Amount on Rebate File
New Hampshire (NH)	11,402,040	11,537,532 2,694,236 (1) 2,864,500 (2) 2,877,796 (3) 3,101,000 (4)	8,787,127	5,603,632 (6 months)	5,660,226	5,650,558	5,440,592
Utah (UT)	16,676,953	16,676,953 3,728,466 (1) 4,103,265 (2) 4,397,088 (3) 4,448,134 (4)	12,793,971	8,193,781 (6 months)	8,188,651	8,176,187	7,492,195
Washington (WA)	78,939,614	81,239,318 17,917,917 (1) 20,080,724 (2) 21,953,481 (3) 21,287,196 (4)	61,375,763	40,086,289 (6 months)	39,546,864	39,529,705	37,573,212

*Invalid data for quarters 1 and 2.

Appendix Table 2.b.

Analysis of Drug Claims Included in the Study Data Set, 1992

APPENDIX TABLE 2.B

ANALYSIS OF DRUG CLAIMS INCLUDED IN THE STUDY DATA SET, 1992
(in dollars)

State	Total Drug Expenditures on 2082	Total Expenditures on MSIS Claims with Something in NDC Field	Total Expenditures on Claims Where NDCs Match to FDB NDCs	Expenditures on Claims with Date Filled During Drug Study Period and Adjustment Claims Eliminated (Length of Study Period)	Expenditures on Study Claims for Enrolled Individuals	Expenditures on Claims with Pricing Data on FDB Files	Expenditures on Claims for Drugs with Rebate Amount on Rebate File
Arkansas (AR)	73,836,333	74,211,407 20,024,122 (1) 19,512,457 (2) 17,672,049 (3) 17,002,779 (4)	53,973,020	34,755,036 (6 months)	34,678,151	34,493,999	33,915,865
Georgia (GA)	191,357,072	191,220,000 49,964,883 (1) 46,878,581 (2) 47,454,897 (3) 46,922,391 (4)	140,353,961	46,671,907 (3 months)	46,506,068	46,208,815	45,477,281
Iowa (IA)	77,703,813	79,397,648 17,960,887 (1) 21,077,001 (2) 20,258,273 (3) 20,101,487 (4)	61,168,448	39,537,836 (6 months)	39,537,614	39,268,370	38,613,902
Indiana (IN)	193,964,493	191,615,000 49,112,776 (1) 48,197,763 (2) 48,897,366 (3) 49,944,256 (4)	140,810,000	90,847,294 (6 months)	90,519,236	90,018,499	83,863,647
Kansas (KS)	48,290,913	49,154,288 11,229,599 (1) 11,732,622 (2) 13,146,440 (3) 13,045,627 (4)	37,136,660	24,754,390 (6 months)	24,018,029	23,876,811	22,818,258
Missouri (MO)	162,786,021	166,580,848 34,131,922 (1) 37,261,812 (2) 44,526,028 (3) 50,661,086 (4)	131,350,155	41,647,267 (3 months)	41,057,966	40,658,587	38,785,372

TABLE 2.B (*continued*)

State	Total Drug Expenditures on 2082	Total Expenditures on MSIS Claims with Something in NDC Field	Total Expenditures on Claims Where NDCs Match to FDB NDCs	Expenditures on Claims with Date Filled During Drug Study Period and Adjustment Claims Eliminated (Length of Study Period)	Expenditures on Study Claims for Enrolled Individuals	Expenditures on Claims with Pricing Data on FDB Files	Expenditures on Claims for Drugs with Rebate Amount on Rebate File
New Hampshire (NH)	19,800,078	20,048,770 4,519,740 (1) 5,145,468 (2) 5,308,902 (3) 5,074,660 (4)	15,473,672	10,247,911 (6 months)	10,176,502	10,110,063	9,804,733
Utah (UT)	29,161,221	29,161,221 6,926,415 (1) 7,356,876 (2) 7,220,010 (3) 7,657,920 (4)	21,888,820	14,070,730 (6 months)	14,065,680	14,000,020	12,911,435
Washington (WA)	127,666,852	130,786,737 29,775,957 (1) 32,698,868 (2) 33,941,805 (3) 34,370,107 (4)	97,719,325	65,697,541 (6 months)	65,093,623	64,775,991	63,062,522

Appendix Table 3.a.

Estimated Errors in the Calculation of Changes in

Price and Quantity, 1990-1992

APPENDIX TABLE 3.A

ESTIMATED ERRORS IN CALCULATION OF CHANGES IN PRICE AND QUANTITY
1990-1992

	Arkansas	Georgia	Iowa	Indiana	Kansas	Missouri	New Hampshire	Utah	Washington
I. Percent of Drug Records									
Percent of NDCs for which price * quantity is 50% greater than expenditure	14.6%	13.2%	20.5%	18.0%	16.7%	17.7%	16.0%	16.7%	15.0%
Percent of NDCs for which price * quantity is 50% less than expenditure	17.0	13.4	17.9	17.0	15.8	15.5	18.0	16.2	19.3
Percent of NDCs for which price * quantity is 50% greater or less than expenditure	31.6	26.6	38.4	35.0	32.5	33.2	34.0	32.9	34.3
II. Percent of Drug Expenditures									
Percent of Drug Expenditures for which price * quantity is 50% greater or less than expenditure	28.0	18.3	28.5	23.6	25.0	24.8	25.3	24.9	19.4

Definitions: Degree of error is the percent by which the rate of change in expenditures calculated from price and quantity changes differs from observed changes in expenditures. The price * quantity calculations include own effects and interaction terms. That is, for each NDC the error equals $[\{p(1+q) + q\}/y] - 1$. Calculations for each state are based on NDCs and groupings of non-innovator multiple source NDCs used in both 1990 and 1992. Percents of expenditure are calculated for 1990.

Price (p) = percentage change in unit prices effective in June of each year as listed in The First DataBank files. Prices were taken as the lower of either average wholesale price or federal and state maximum allowable cost limits.

Quantity (q) = percentage change in the number of prescriptions filled in the six-month observation period (three months for Washington and Georgia). Counts included all those filled but paid in the subsequent three-month period.

Expenditure (y) = percentage change in total expenditures (including dispensing fee) over the two years. Medicaid expenditures are calculated from the same claims used to calculate change in quantity.

Line 3 is the total of lines 1 and 2, each of which lists the percentage of NDCs prescribed in both years for which the implied growth is greater or less than 50 percent.

Appendix Table 3.b.

Interstate Consistency of Errors in Measurement of

Price and Quantity, Iowa and Georgia, 1990-1992

INTERSTATE CONSISTENCY OF ERRORS IN MEASUREMENT OF PRICE
AND QUANTITY, IOWA AND GEORGIA, 1990 - 1992

	Iowa	Distribution of NDCs in Georgia			
Degree of Error[a]	Number of NDCs in Error Category[b]	Number Also Used in Georgia	Number with Same Degree of Error	Number with Same +/- Direction of Error	Number with Opposite Direction of Error
Less than -50%	848	521	99 (19.0)[c]	291 (55.8)[c]	230 (44.2)[c]
0 to -25%	973	704	244 (34.7)	357 (50.7)	347 (49.3)
0 to +25%	863	642	251 (39.1)	372 (57.9)	270 (42.1)
+25% to +50%	286	202	20 (9.9)	133 (65.8)	69 (34.2)
Greater than 50%	740	441	103 (23.3)	252 (57.1)	189 (42.9)
Total	4135	2804	751 (26.8)	1,578 (56.3)	1,226 (43.7)

NOTES: [a]Degree of Error refers to the percentage deviation between observed percentage change in expenditure and change calculated on the basis of posted price and quantity measures. See notes for Appendix Table 3.A.

[b]The number of NDCs are the number of unique National Drug Codes with at least one prescription during the observation periods. However, for non-innovator multiple source drugs (i.e., generic drugs) the numerous different NDCs for individual manufacturers of the same entity were aggregated by Generic Sequence Number.

[c]Columns 3, 4, and 5 as a percent of column 2 are shown in parentheses.

Appendix Table 4

Total Drug Expenditures, Enrollees, and Related Measures

by State and Eligibility Category

ARKANSAS

TOTAL DRUG EXPENDITURES, ENROLLEES, AND RELATED MEASURES
BY STATE AND ELIGIBILITY CATEGORY
(for study period 1990 and 1992)

Eligibility Category and Year	Total Drug Expenditures	Total Enrollees	Number of Prescriptions	Expenditure per Prescription	Expenditure per Enrollee
State Total 1990	28,684,715.00	210,998.87	1,645,037.00	17.44	135.95
Aged	15,115,059.00	56,044.76	864,508.00	17.48	269.70
Blind/Disabled	9,044,082.00	39,692.59	431,432.00	20.96	227.85
AFDC/Poverty Related - Adults	1,956,342.00	27,645.30	133,138.00	14.69	70.77
AFDC/Poverty Related - Children	2,568,903.00	87,603.89	215,929.00	11.90	29.32
State Total 1992	34,678,151.00	254,720.12	1,640,532.00	21.14	136.14
Aged	16,743,587.00	59,123.38	773,577.00	21.64	283.20
Blind/Disabled	11,689,134.00	50,009.34	435,517.00	26.84	233.74
AFDC/Poverty Related - Adults	2,347,537.00	33,295.07	132,486.00	17.72	70.51
AFDC/Poverty Related - Children	3,897,893.00	112,292.33	298,952.00	13.04	34.71

APPENDIX TABLE 4

GEORGIA

TOTAL DRUG EXPENDITURES, ENROLLEES, AND RELATED MEASURES
BY STATE AND ELIGIBILITY CATEGORY
(for study period 1990 and 1992)

Eligibility Category and Year	Total Drug Expenditures	Total Enrollees	Number of Prescriptions	Expenditure per Prescription	Expenditure per Enrollee
State Total 1990	34,230,811.00	567,224.94	1,899,652.00	18.02	60.35
Aged	15,638,046.00	103,721.95	840,416.00	18.61	150.77
Blind/Disabled	11,010,781.00	88,335.62	533,628.00	20.63	124.65
AFDC/Poverty Related - Adults	3,934,102.00	93,740.98	245,303.00	16.04	41.97
AFDC/Poverty Related - Children	3,647,882.00	281,426.39	280,305.00	13.01	12.96
State Total 1992	46,506,068.00	781,523.96	2,273,544.00	20.46	59.51
Aged	19,119,268.00	114,085.33	886,732.00	21.56	167.59
Blind/Disabled	15,265,954.00	108,293.09	608,016.00	25.11	140.97
AFDC/Poverty Related - Adults	5,210,114.00	137,398.40	300,163.00	17.36	37.92
AFDC/Poverty Related - Children	6,910,732.00	421,746.14	478,633.00	14.44	16.39

APPENDIX TABLE 4

IOWA

TOTAL DRUG EXPENDITURES, ENROLLEES, AND RELATED MEASURES
BY STATE AND ELIGIBILITY CATEGORY
(for study period 1990 and 1992)

Eligibility Category and Year	Total Drug Expenditures	Total Enrollee	Number of Prescriptions	Expenditure per Prescription	Expenditure per Enrollee
State Total 1990	27,278,550.00	201,864.61	1,512,613.00	18.03	135.13
Aged	11,939,287.00	31,334.67	680,229.00	17.55	381.02
Blind/Disabled	8,417,782.00	29,124.68	387,603.00	21.72	289.03
AFDC/Poverty Related - Adults	3,494,626.00	42,579.01	201,072.00	17.38	82.07
AFDC/Poverty Related - Children	3,426,566.00	98,822.27	243,702.00	14.06	34.67
State Total 1992	39,537,614.00	229,483.08	1,789,095.00	22.10	172.29
Aged	16,013,226.00	33,939.06	764,255.00	20.95	471.82
Blind/Disabled	13,598,481.00	34,371.65	484,929.00	28.04	395.63
AFDC/Poverty Related - Adults	4,809,648.00	45,869.08	234,841.00	20.48	104.86
AFDC/Poverty Related - Children	5,116,259.00	115,303.29	305,070.00	16.77	44.37

APPENDIX TABLE 4

INDIANA

TOTAL DRUG EXPENDITURES, ENROLLEES, AND RELATED MEASURES
BY STATE AND ELIGIBILITY CATEGORY
(for study period 1990 and 1992)

Eligibility Category and Year	Total Drug Expenditures	Total Enrollees	Number of Prescriptions	Expenditure per Prescription	Expenditure per Enrollee
State Total 1990	53,733,183.00	287,310.62	3,151,860.00	17.05	187.02
Aged	23,762,763.00	44,503.44	1,458,405.00	16.29	533.95
Blind/Disabled	18,719,420.00	44,050.05	918,891.00	20.37	424.96
AFDC/Poverty Related - Adults	6,591,462.00	54,794.91	401,131.00	16.43	120.29
AFDC/Poverty Related - Children	4,658,666.00	143,958.55	373,397.00	12.48	32.36
State Total 1992	90,519,236.00	423,666.37	4,378,804.00	20.67	213.66
Aged	33,623,368.00	50,816.96	1,779,972.00	18.89	661.66
Blind/Disabled	32,776,532.00	55,714.94	1,250,828.00	26.20	588.29
AFDC/Poverty Related - Adults	12,910,781.00	81,224.68	620,559.00	20.81	158.95
AFDC/Poverty Related - Children	11,208,302.00	235,905.29	727,425.00	15.41	47.51

APPENDIX TABLE 4

MISSOURI

TOTAL DRUG EXPENDITURES, ENROLLEES, AND RELATED MEASURES
BY STATE AND ELIGIBILITY CATEGORY
(for study period 1990 and 1992)

Eligibility Category and Year	Total Drug Expenditures	Total Enrollees	Number of Prescriptions	Expenditure per Prescription	Expenditure per Enrollee
State Total 1990	19,134,825.00	399,534.25	1,188,387.00	16.10	47.89
Aged	9,327,899.00	66,790.03	573,157.00	16.27	139.66
Blind/Disabled	6,094,656.00	53,739.72	322,499.00	18.90	113.41
AFDC/Poverty Related – Adults	1,883,851.00	75,967.93	133,406.00	14.12	24.80
AFDC/Poverty Related – Children	1,828,419.00	203,036.24	159,325.00	11.48	9.01
State Total 1992	41,057,966.00	486,456.30	1,931,490.00	21.26	84.40
Aged	17,060,493.00	72,114.87	850,082.00	20.07	236.57
Blind/Disabled	15,120,809.00	65,407.05	569,710.00	26.54	231.18
AFDC/Poverty Related – Adults	4,447,151.00	85,849.42	222,920.00	19.95	51.80
AFDC/Poverty Related – Children	4,429,513.00	263,084.63	288,778.00	15.34	16.84

APPENDIX TABLE 4

NEW HAMPSHIRE

TOTAL DRUG EXPENDITURES, ENROLLEES, AND RELATED MEASURES
BY STATE AND ELIGIBILITY CATEGORY
(for study period 1990 and 1992)

Eligibility Category and Year	Total Drug Expenditures	Total Enrollees	Number of Prescriptions	Expenditure per Prescription	Expenditure per Enrollee
State Total 1990	5,660,226.00	37,106.69	363,315.00	15.58	152.54
Aged	3,023,977.00	7,750.13	207,883.00	14.55	390.18
Blind/Disabled	1,762,485.00	5,795.40	91,168.00	19.33	304.12
AFDC/Poverty Related - Adults	451,994.00	6,708.47	29,362.00	15.39	67.38
AFDC/Poverty Related - Children	421,770.00	16,852.69	34,902.00	12.08	25.03
State Total 1992	10,176,502.00	58,977.24	536,614.00	18.96	172.55
Aged	4,600,251.00	8,744.82	271,157.00	16.97	526.05
Blind/Disabled	3,388,847.00	8,526.84	140,252.00	24.16	397.43
AFDC/Poverty Related - Adults	1,117,829.00	12,459.57	56,958.00	19.63	89.72
AFDC/Poverty Related - Children	1,069,575.00	29,244.68	68,247.00	15.67	36.57

APPENDIX TABLE 4

UTAH

TOTAL DRUG EXPENDITURES, ENROLLEES, AND RELATED MEASURES
BY STATE AND ELIGIBILITY CATEGORY
(for study period 1990 and 1992)

Eligibility Category and Year	Total Drug Expenditures	Total Enrollees	Number of Prescriptions	Expenditure per Prescription	Expenditure per Enrollee
State Total 1990	8,188,651.00	85,406.83	530,622.00	15.43	95.88
Aged	2,279,938.00	6,983.96	156,250.00	14.59	326.45
Blind/Disabled	3,082,327.00	9,767.95	157,105.00	19.62	315.56
AFDC/Poverty Related - Adults	1,660,827.00	19,146.88	113,047.00	14.69	86.74
AFDC/Poverty Related - Children	1,165,559.00	49,507.03	104,220.00	11.18	23.54
State Total 1992	14,065,680.00	116,097.26	729,424.00	19.28	121.15
Aged	3,262,157.00	7,776.36	177,762.00	18.35	419.50
Blind/Disabled	5,365,010.00	12,891.82	214,204.00	25:05	416.16
AFDC/Poverty Related - Adults	2,928,010.00	24,272.83	159,217.00	18.39	120.63
AFDC/Poverty Related - Children	2,510,419.00	71,150.77	178,233.00	14.09	35.28

WASHINGTON

TOTAL DRUG EXPENDITURES, ENROLLEES, AND RELATED MEASURES
BY STATE AND ELIGIBILITY CATEGORY
(for study period 1990 and 1992)

Eligibility Category and Year	Total Drug Expenditures	Total Enrollees	Number of Prescriptions	Expenditure per Prescription	Expenditure per Enrollee
State Total 1990	39,546,864.00	374,779.78	2,258,824.00	17.51	105.52
Aged	13,445,510.00	41,842.93	749,415.00	17.94	321.33
Blind/Disabled	14,378,303.00	50,487.73	657,143.00	21.88	284.79
AFDC/Poverty Related - Adults	6,808,567.00	92,154.09	438,980.00	15.51	73.88
AFDC/Poverty Related - Children	4,913,937.00	190,278.04	413,226.00	11.89	25.83
State Total 1992	65,093,623.00	486,274.40	2,977,977.00	21.86	133.86
Aged	18,989,330.00	46,447.03	868,704.00	21.86	408.84
Blind/Disabled	26,545,658.00	68,661.01	947,488.00	28.02	386.62
AFDC/Poverty Related - Adults	11,023,682.00	116,842.26	572,603.00	19.25	94.35
AFDC/Poverty Related - Children	8,534,943.00	254,315.77	589,180.00	14.49	33.56

Appendix Table 5

State Summary of Changes in Drug Expenditures

ARKANSAS

STATE SUMMARY OF CHANGES IN DRUG EXPENDITURES
ALL ENROLLEES, NO ADJUSTMENT

Type of Expenditure	1990	1992	Amount Change	Percent of Total Change	1990 to 1992 Percent Change
I. Total Expenditures, of which:	27,771,519.00	33,915,865.00	6,144,346.00	100.00	22.12
NDCs used in 1990 only	491,628.00	0.00	-491,628.00	-8.00	.
NDCs used in 1992 only, of which:	0.00	4,077,919.00	4,077,919.00	66.37	.
- Previously available NDCs	0.00	571,714.00	571,714.00	9.30	.
- New NDCs for existing drugs	0.00	2,252,791.00	2,252,791.00	36.66	.
- New drugs	0.00	1,253,414.00	1,253,414.00	20.40	.
NDCs used in 1990 and 1992	27,279,891.00	29,837,946.00	2,558,055.00	41.63	9.38
II. Total Rebates	0.00	6,049,524.19	6,049,524.19	.	.
III. Total Expenditures Net Rebates, of which:	27,771,519.00	27,866,340.81	94,821.81	100.00	0.34
NDCs used in 1990 only	491,628.00	0.00	-491,628.00	-518.48	.
NDCs used in 1992 only, of which:	0.00	3,354,016.30	3,354,016.30	3537.18	.
- Previously available NDCs	0.00	457,506.28	457,506.28	482.49	.
- New NDCs for existing drugs	0.00	1,782,117.70	1,782,117.70	1879.44	.
- New drugs	0.00	1,114,392.32	1,114,392.32	1175.25	.
NDCs used in 1990 and 1992	27,279,891.00	24,512,324.51	-2,767,566.49	-2918.70	-10.15

GEORGIA

STATE SUMMARY OF CHANGES IN DRUG EXPENDITURES
ALL ENROLLEES, NO ADJUSTMENT

Type of Expenditure	1990	1992	Amount Change	Percent of Total Change	1990 to 1992 Percent Change
I. Total Expenditures, of which:	33,538,722.00	45,477,281.00	11,938,559.00	100.00	35.60
NDCs used in 1990 only	1,312,438.00	0.00	1,312,438.00	-10.99	.
NDCs used in 1992 only, of which:	0.00	4,542,878.00	4,542,878.00	38.05	.
- Previously available NDCs	0.00	715,701.00	715,701.00	5.99	.
- New NDCs for existing drugs	0.00	2,119,600.00	2,119,600.00	17.75	.
- New drugs	0.00	1,707,577.00	1,707,577.00	14.30	.
NDCs used in 1990 and 1992	32,226,284.00	40,934,403.00	8,708,119.00	72.94	27.02
II. Total Rebates	0.00	9,087,191.12	9,087,191.12	.	.
III. Total Expenditures Net Rebates, of which:	33,538,722.00	36,390,089.88	2,851,367.88	100.00	8.50
NDCs used in 1990 only	1,312,438.00	0.00	-1,312,438.00	-46.03	.
NDCs used in 1992 only, of which:	0.00	3,767,247.34	3,767,247.34	132.12	.
- Previously available NDCs	0.00	619,811.39	619,811.39	21.74	.
- New NDCs for existing drugs	0.00	1,657,418.75	1,657,418.75	58.13	.
- New drugs	0.00	1,490,017.20	1,490,017.20	52.26	.
NDCs used in 1990 and 1992	32,226,284.00	32,622,842.54	396,558.54	13.91	1.23

IOWA

STATE SUMMARY OF CHANGES IN DRUG EXPENDITURES
ALL ENROLLEES, NO ADJUSTMENT

Type of Expenditure	1990	1992	Amount Change	Percent of Total Change	1990 to 1992 Percent Change
I. Total Expenditures, of which:	26,710,884.00	38,613,902.00	11,903,018.00	100.00	44.56
NDCs used in 1990 only	429,204.00	0.00	-429,204.00	-3.61	.
NDCs used in 1992 only, of which:	0.00	3,200,015.00	3,200,015.00	26.88	.
- Previously available NDCs	0.00	227,726.00	227,726.00	1.91	.
- New NDCs for existing drugs	0.00	1,795,285.00	1,795,285.00	15.08	.
- New drugs	0.00	1,177,004.00	1,177,004.00	9.89	.
NDCs used in 1990 and 1992	26,281,680.00	35,413,887.00	9,132,207.00	76.72	34.75
II. Total Rebates	0.00	7,654,686.78	7,654,686.78	.	.
III. Total Expenditures Net Rebates, of which:	26,710,884.00	30,959,215.22	4,248,331.22	100.00	15.90
NDCs used in 1990 only	429,204.00	0.00	-429,204.00	-10.10	.
NDCs used in 1992 only, of which:	0.00	2,662,983.27	2,662,983.27	62.68	.
- Previously available NDCs	0.00	199,393.40	* 9,393.40	4.69	.
- New NDCs for existing drugs	0.00	1,429,741.11	1,429,741.11	33.65	.
- New drugs	0.00	1,033,848.75	1,033,848.75	24.34	.
NDCs used in 1990 and 1992	26,281,680.00	28,296,231.95	2,014,551.95	47.42	7.67

INDIANA

STATE SUMMARY OF CHANGES IN DRUG EXPENDITURES
ALL ENROLLEES, NO ADJUSTMENT

Type of Expenditure	1990	1992	Amount Change	Percent of Total Change	1990 to 1992 Percent Change
I. Total Expenditures, of which:	49,628,720.00	83,863,647.00	34,234,927.00	100.00	68.98
NDCs used in 1990 only	938,983.00	0.00	-938,983.00	-2.74	.
NDCs used in 1992 only, of which:	0.00	7,613,228.00	7,613,228.00	22.24	.
- Previously available NDCs	0.00	648,758.00	648,758.00	1.90	.
- New NDCs for existing drugs	0.00	3,946,177.00	3,946,177.00	11.53	.
- New drugs	0.00	3,018,293.00	3,018,293.00	8.82	.
NDCs used in 1990 and 1992	48,689,737.00	76,250,419.00	27,560,682.00	80.50	56.60
II. Total Rebates	0.00	17,227,355.90	17,227,355.90	.	.
III. Total Expenditures Net Rebates, of which:	49,628,720.00	66,636,291.10	17,007,571.10	100.00	34.27
NDCs used in 1990 only	938,983.00	0.00	-938,983.00	-5.52	.
NDCs used in 1992 only, of which:	0.00	6,323,769.14	6,323,769.14	37.18	.
- Previously available NDCs	0.00	579,690.07	579,690.07	3.41	.
- New NDCs for existing drugs	0.00	3,130,512.15	3,130,512.15	18.41	.
- New drugs	0.00	2,613,566.92	2,613,566.92	15.37	.
NDCs used in 1990 and 1992	48,689,737.00	60,312,521.97	11,622,784.97	68.34	23.87

KANSAS

STATE SUMMARY OF CHANGES IN DRUG EXPENDITURES
ALL ENROLLEES, NO ADJUSTMENT

Type of Expenditure	1990	1992	Amount Change	Percent of Total Change	1990 to 1992 Percent Change
I. Total Expenditures, of which:	14,050,052.00	22,818,258.00	8,768,206.00	100.00	62.41
NDCs used in 1990 only	533,745.00	0.00	-533,745.00	-6.09	.
NDCs used in 1992 only, of which:	0.00	3,172,831.00	3,172,831.00	36.19	.
- Previously available NDCs	0.00	1,111,842.00	1,111,842.00	12.68	.
- New NDCs for existing drugs	0.00	1,303,675.00	1,303,675.00	14.87	.
- New drugs	0.00	757,314.00	757,314.00	8.64	.
NDCs used in 1990 and 1992	13,516,307.00	19,645,427.00	6,129,120.00	69.90	45.35
		.			
II. Total Rebates	0.00	5,627,623.46	5,627,623.46	.	.
III. Total Expenditures Net Rebates, of which:	14,050,052.00	17,190,634.54	3,140,582.54	100.00	22.35
NDCs used in 1990 only	533,745.00	0.00	-533,745.00	-17.00	.
NDCs used in 1992 only, of which:	0.00	2,402,026.93	2,402,026.93	76.48	.
- Previously available NDCs	0.00	786,287.13	786,287.13	25.04	.
- New NDCs for existing drugs	0.00	974,426.65	974,426.65	31.03	.
- New drugs	0.00	641,313.16	641,313.16	20.42	.
NDCs used in 1990 and 1992	13,516,307.00	14,788,607.61	1,272,300.61	40.51	9.41

APPENDIX TABLE 5

MISSOURI

STATE SUMMARY OF CHANGES IN DRUG EXPENDITURES
ALL ENROLLEES, NO ADJUSTMENT

Type of Expenditure	1990	1992	Amount Change	Percent of Total Change	1990 to 1992 Percent Change
I. Total Expenditures, of which:	18,680,692.00	38,785,372.00	20,104,680.00	100.00	107.62
NDCs used in 1990 only	389,193.00	0.00	-389,193.00	-1.94	.
NDCs used in 1992 only, of which:	0.00	7,269,549.00	7,269,549.00	36.16	.
- Previously available NDCs	0.00	2,660,312.00	2,660,312.00	13.23	.
- New NDCs for existing drugs	0.00	2,838,904.00	2,838,904.00	14.12	.
- New drugs	0.00	1,770,333.00	1,770,333.00	8.81	.
NDCs used in 1990 and 1992	18,291,499.00	31,515,823.00	13,224,324.00	65.78	72.30
II. Total Rebates	0.00	7,994,784.45	7,994,784.45	.	.
III. Total Expenditures Net Rebates, of which:	18,680,692.00	30,790,587.55	12,109,895.55	100.00	64.83
NDCs used in 1990 only	389,193.00	0.00	-389,193.00	-3.21	.
NDCs used in 1992 only, of which:	0.00	5,969,326.33	5,969,326.33	49.29	.
- Previously available NDCs	0.00	2,143,429.66	2,143,429.66	17.70	.
- New NDCs for existing drugs	0.00	2,340,915.69	2,340,915.69	19.33	.
- New drugs	0.00	1,484,980.97	1,484,980.97	12.26	.
NDCs used in 1990 and 1992	18,291,499.00	24,821,261.22	6,529,762.22	53.92	35.70

APPENDIX TABLE 5

NEW HAMPSHIRE

STATE SUMMARY OF CHANGES IN DRUG EXPENDITURES
ALL ENROLLEES, NO ADJUSTMENT

Type of Expenditure	1990	1992	Amount Change	Percent of Total Change	1990 to 1992 Percent Change
I. Total Expenditures, of which:	5,440,592.00	9,804,733.00	4,364,141.00	100.00	80.21
NDCs used in 1990 only	214,415.00	0.00	-214,415.00	-4.91	.
NDCs used in 1992 only, of which:	0.00	1,252,249.00	1,252,249.00	28.69	.
- Previously available NDCs	0.00	212,376.00	212,376.00	4.87	.
- New NDCs for existing drugs	0.00	806,224.00	806,224.00	18.47	.
- New drugs	0.00	233,649.00	233,649.00	5.35	.
NDCs used in 1990 and 1992	5,226,177.00	8,552,484.00	3,326,307.00	76.22	63.65
II. Total Rebates	0.00	2,036,433.22	2,036,433.22	.	.
III. Total Expenditures Net Rebates, of which:	5,440,592.00	7,768,299.78	2,327,707.78	100.00	42.78
NDCs used in 1990 only	214,415.00	0.00	-214,415.00	-9.21	.
NDCs used in 1992 only, of which:	0.00	1,024,766.74	1,024,766.74	44.02	.
- Previously available NDCs	0.00	172,266.08	172,266.08	7.40	.
- New NDCs for existing drugs	0.00	652,404.46	652,404.46	28.03	.
- New drugs	0.00	200,096.20	200,096.20	8.60	.
NDCs used in 1990 and 1992	5,226,177.00	6,743,533.04	1,517,356.04	65.19	29.03

UTAH

STATE SUMMARY OF CHANGES IN DRUG EXPENDITURES
ALL ENROLLEES, NO ADJUSTMENT

Type of Expenditure	1990	1992	Amount Change	Percent of Total Change	1990 to 1992 Percent Change
I. Total Expenditures, of which:	7,492,195.00	12,911,435.00	5,419,240.00	100.00	72.33
NDCs used in 1990 only	165,970.00	0.00	-165,970.00	-3.06	.
NDCs used in 1992 only, of which:	0.00	1,315,519.00	1,315,519.00	24.27	.
- Previously available NDCs	0.00	219,157.00	219,157.00	4.04	.
- New NDCs for existing drugs	0.00	601,314.00	601,314.00	11.10	.
- New drugs	0.00	495,048.00	495,048.00	9.14	.
NDCs used in 1990 and 1992	7,326,225.00	11,595,916.00	4,269,691.00	78.79	58.28
II. Total Rebates	0.00	2,733,377.93	2,733,377.93	.	.
III. Total Expenditures Net Rebates, of which:	7,492,195.00	10,178,057.07	2,685,862.07	100.00	35.85
NDCs used in 1990 only	165,970.00	0.00	-165,970.00	-6.18	.
NDCs used in 1992 only, of which:	0.00	1,100,821.74	1,100,821.74	40.99	.
- Previously available NDCs	0.00	186,929.46	186,929.46	6.96	.
- New NDCs for existing drugs	0.00	487,334.94	487,334.94	18.14	.
- New drugs	0.00	426,557.34	426,557.34	15.88	.
NDCs used in 1990 and 1992	7,326,225.00	9,077,235.33	1,751,010.33	65.19	23.90

WASHINGTON

STATE SUMMARY OF CHANGES IN DRUG EXPENDITURES
ALL ENROLLEES, NO ADJUSTMENT

Type of Expenditure	1990	1992	Amount Change	Percent of Total Change	1990 to 1992 Percent Change
I. Total Expenditures, of which:	37,573,212.00	63,062,522.00	25,489,310.00	100.00	67.84
NDCs used in 1990 only	278,309.00	0.00	-278,309.00	-1.09	.
NDCs used in 1992 only, of which:	0.00	6,721,006.00	6,721,006.00	26.37	.
- Previously available NDCs	0.00	474,131.00	474,131.00	1.86	.
- New NDCs for existing drugs	0.00	3,662,615.00	3,662,615.00	14.37	.
- New drugs	0.00	2,584,260.00	2,584,260.00	10.14	.
NDCs used in 1990 and 1992	37,294,903.00	56,341,516.00	19,046,613.00	74.72	51.07
II. Total Rebates	0.00	13,898,771.37	13,898,771.37	.	.
III. Total Expenditures Net Rebates, of which:	37,573,212.00	49,163,750.63	11,590,538.63	100.00	30.85
NDCs used in 1990 only	278,309.00	0.00	-278,309.00	-2.40	.
NDCs used in 1992 only, of which:	0.00	5,523,736.14	5,523,736.14	47.66	.
- Previously available NDCs	0.00	397,233.76	397,233.76	3.43	.
- New NDCs for existing drugs	0.00	2,903,462.28	2,903,462.28	25.05	.
- New drugs	0.00	2,223,040.11	2,223,040.11	19.18	.
NDCs used in 1990 and 1992	37,294,903.00	43,640,014.49	6,345,111.49	54.74	17.01

Appendix Table 6

Changes in Drug Expenditures Controlling for Enrollment

ARKANSAS

CHANGES IN DRUG EXPENDITURES CONTROLLING FOR ENROLLMENT
BASELINE - NO ADJUSTMENT
ALL ENROLLEES

Type of Expenditure	1990	1992	Amount Change	Percent of Total Change	1990 to 1992 Percent Change
I. Total Expenditures, of which:	27,771,519.00	33,915,865.00	6,144,346.00	100.00	22.12
NDCs used in 1990 only	491,628.00	0.00	-491,628.00	-8.00	.
NDCs used in 1992 only, of which:	0.00	4,077,919.00	4,077,919.00	66.37	.
- Previously available NDCs	0.00	571,714.00	571,714.00	9.30	.
- New NDCs for existing drugs	0.00	2,252,791.00	2,252,791.00	36.66	.
- New drugs	0.00	1,253,414.00	1,253,414.00	20.40	.
NDCs used in 1990 and 1992	27,279,891.00	29,837,946.00	2,558,055.00	41.63	9.38
II. Total Rebates	0.00	6,049,524.19	6,049,524.19	.	.
III. Total Expenditures Net Rebates, of which:	27,771,519.00	27,866,340.81	94,821.81	100.00	0.34
NDCs used in 1990 only	491,628.00	0.00	-491,628.00	-518.48	.
NDCs used in 1992 only, of which:	0.00	3,354,016.30	3,354,016.30	3537.18	.
- Previously available NDCs	0.00	457,506.28	457,506.28	482.49	.
- New NDCs for existing drugs	0.00	1,782,117.70	1,782,117.70	1879.44	.
- New drugs	0.00	1,114,392.32	1,114,392.32	1175.25	.
NDCs used in 1990 and 1992	27,279,891.00	24,512,324.51	-2,767,566.49	-2918.70	-10.15

ARKANSAS

CHANGES IN DRUG EXPENDITURES CONTROLLING FOR ENROLLMENT
ADJUSTED - NET OF ENROLLMENT GROWTH
ALL ENROLLEES

Type of Expenditure	1990	1992	Amount Change	Percent of Total Change	1990 to 1992 Percent Change
I. Total Expenditures, of which:	27,771,519.00	29,483,659.15	1,712,140.15	100.00	6.17
NDCs used in 1990 only	491,628.00	0.00	-491,628.00	-28.71	.
NDCs used in 1992 only, of which:	0.00	3,464,754.86	3,464,754.86	202.36	.
- Previously available NDCs	0.00	488,061.89	488,061.89	28.51	.
- New NDCs for existing drugs	0.00	1,913,363.06	1,913,363.06	111.75	.
- New drugs	0.00	1,063,329.91	1,063,329.91	62.11	.
NDCs used in 1990 and 1992	27,279,891.00	26,018,904.30	-1,260,986.70	-73.65	-4.62
II. Total Rebates	0.00	5,272,586.82	5,272,586.82	.	.
III. Total Expenditures Net Rebates, of which:	27,771,519.00	24,211,072.34	-3,560,446.66	100.00	-12.82
NDCs used in 1990 only	491,628.00	0.00	-491,628.00	13.81	.
NDCs used in 1992 only, of which:	0.00	2,842,775.47	2,842,775.47	-79.84	.
- Previously available NDCs	0.00	390,543.83	390,543.83	-10.97	.
- New NDCs for existing drugs	0.00	1,507,182.80	1,507,182.80	-42.33	.
- New drugs	0.00	945,048.84	945,048.84	-26.54	.
NDCs used in 1990 and 1992	27,279,891.00	21,368,296.86	-5,911,594.14	166.04	-21.67

ARKANSAS

CHANGES IN DRUG EXPENDITURES CONTROLLING FOR ENROLLMENT
ADJUSTED - NET OF ENROLLMENT GROWTH AND SHIFTS IN USE RATE
ALL ENROLLEES

Type of Expenditure	1990	1992	Amount Change	Percent of Total Change	1990 to 1992 Percent Change
I. Total Expenditures, of which:	27,771,519.00	32,028,374.23	4,256,855.23	100.00	15.33
NDCs used in 1990 only	491,628.00	0.00	-491,628.00	-11.55	.
NDCs used in 1992 only, of which:	0.00	3,464,754.86	3,464,754.86	81.39	.
- Previously available NDCs	0.00	488,061.89	488,061.89	11.47	.
- New NDCs for existing drugs	0.00	1,913,363.06	1,913,363.06	44.95	.
- New drugs	0.00	1,063,329.91	1,063,329.91	24.98	.
NDCs used in 1990 and 1992	27,279,891.00	28,563,619.37	1,283,728.37	30.16	4.71
II. Total Rebates	0.00	5,778,768.07	5,778,768.07	.	.
III. Total Expenditures Net Rebates, of which:	27,771,519.00	26,249,606.16	-1,521,912.84	100.00	-5.48
NDCs used in 1990 only	491,628.00	0.00	-491,628.00	32.30	.
NDCs used in 1992 only, of which:	0.00	2,896,550.91	2,896,550.91	-190.32	.
- Previously available NDCs	0.00	399,218.35	399,218.35	-26.23	.
- New NDCs for existing drugs	0.00	1,529,346.66	1,529,346.66	-100.49	.
- New drugs	0.00	967,985.90	967,985.90	-63.60	.
NDCs used in 1990 and 1992	27,279,891.00	23,353,055.24	-3,926,835.76	258.02	-14.39

Appendix Table 7

Changes in Drug Expenditures by Patent Status

ARKANSAS

CHANGES IN DRUG EXPENDITURES BY PATENT STATUS

Total Expenditure	1990	1992	Amount Change	Percent of total Change	1990 to 1992 Percent Change
State Total					
I. Total Expenditures, of which:	27,771,519.00	33,915,865.00	6,144,346.00	100.00	22.12
NDCs used in 1990 only	491,628.0.	0.00	-491,628.00	-8.00	-
NDCs used in 1992 only, of which:	0.00	4,077,919.00	4,077,919.00	66.37	-
- Previously available NDCs	0.00	571,714.00	571,714.00	9.30	-
- New NDCs for existing drugs	0.00	2,252,791.00	2,252,791.00	36.66	-
- New drugs	0.00	1,253,414.00	1,253,414.00	20.40	-
NDCs used in 1990 and 1992	27,279,891.00	29,837,946.00	2,558,055.00	41.63	9.38
II. Total Rebates	0.00	6,049,524.19	6,049,524.19	-	-
III. Total Expenditures Net Rebates, of which:	27,771,519.00	27,866,340.81	94,821.81	100.00	0.34
NDCs used in 1990 only	491,628.00	0.00	-491,628.00	-518.5	-
NDCs used in 1992 only, of which:	0.00	3,354,016.30	3,354,016.30	3537.2	-
- Previously available NDCs	0.00	457,506.28	457,506.28	482.49	-
- New NDCs for existing drugs	0.00	1,782,117.70	1,782,117.70	1879.4	-
- New drugs	0.00	1,114,392.32	1,114,392.32	1175.2	-
NDCs used in 1990 and 1992	27,279,891.00	24,512,324.51	-2,767,546.49	-2919	-10.15
Single Source in 90 & 92					
I. Total Expenditures, of which:	12,214,536.00	13,666,142.00	1,451,606.00	100.00	11.88
NDCs used in 1990 only	152,877.00	0.00	-152,877.00	-10.53	-
NDCs used in 1992 only, of which:	0.00	358,289.00	358,289.00	24.68	-
- Previously available NDCs	0.00	358,289.00	358,289.00	24.68	-
- New NDCs for existing drugs	0.00	0.00	0.00	0.00	-
- New drugs	0.00	0.00	0.00	0.00	-
NDCs used in 1990 and 1992	12,061,659.00	13,307,853.00	1,246,194.00	85.85	10.33
II. Total Rebates	0.00	3,026,961.22	3,026,961.22	-	-
III. Total Expenditures Net Rebates, of which:	12,214,536.00	10,639,180.78	-1,575,355.22	100.00	-12.90
NDCs used in 1990 only	152,877.00	0.00	-152,877.00	9.70	-
NDCs used in 1992 only, of which:	0.00	283,311.80	283,311.80	-17.98	-
- Previously available NDCs	0.00	283,311.80	283,311.80	-17.98	-
- N- NDCs for existing drugs	0.00	0.00	0.00	0.00	-
- New drugs	0.00	0.00	0.00	0.00	-
NDCs used in 1990 and 1992	12,061,659.00	10,355,868.98	-1,705,790.02	108.28	-14.14

Total Expenditure	1990	1992	Amount Change	Percent of total Change	1990 to 1992 Percent Change
Innov. Mult. Source in 90 & 92					
I. Total Expenditures, of which:	5,447,429.00	5,818,324.00	370,895.00	100.00	6.81
NDCs used in 1990 only	199,248.00	0.00	-199,248.00	-53.72	-
NDCs used in 1992 only, of which:	0.00	175,261.00	175,261.00	47.25	-
- Previously available NDCs	0.00	175,261.00	175,261.00	47.25	-
- New NDCs for existing drugs	0.00	0.00	0.00	0.00	-
- New drugs	0.00	0.00	0.00	0.00	-
NDCs used in 1990 and 1992	5,248,181.00	5,643,063.00	394,882.00	106.47	7.52
II. Total Rebates	0.00	1,394,135.37	1,394,135.37	-	-
III. Total Expenditures Net Rebates, of which:	5,447,429.00	4,426,188.63	-1,023,240.37	100.00	-18.75
NDCs used in 1990 only	199,248.00	0.00	-199,248.00	19.47	-
NDCs used in 1992 only, of which:	0.00	145,997.93	145,997.93	-14.27	-
- Previously available NDCs	0.00	145,997.93	145,997.93	-14.27	-
- New NDCs for existing drugs	0.00	0.00	0.00	0.00	-
- New drugs	0.00	0.00	0.00	0.00	-
NDCs used in 1990 and 1992	5,248,181.00	4,278,190.70	-969,990.30	94.80	-18.48
Non-Innov. Mult. Source in 90 & 92					
I. Total Expenditures, of which:	7,707,705.00	7,513,603.00	-194,102.00	100.00	-2.52
NDCs used in 1990 only	16,964.00	0.00	-16,964.00	8.74	-
NDCs used in 1992 only, of which:	0.00	176,296.00	176,296.00	-90.83	-
- Previously available NDCs	0.00	0.00	0.00	0.00	-
- New NDCs for existing drugs	0.00	176,296.00	176,296.00	-90.83	-
- New drugs	0.00	0.00	0.00	0.00	-
NDCs used in 1990 and 1992	7,690,741.00	7,337,307.00	-353,434.00	182.09	-4.60
II. Total Rebates	0.00	313,222.08	313,222.08	-	-
III. Total Expenditures Net Rebates, of which:	7,707,705.00	7,200,380.92	-507,324.08	100.00	-6.58
NDCs used in 1990 only	16,964.00	0.00	-16,964.00	3.34	-
NDCs used in 1992 only, of which:	0.00	152,706.88	152,706.88	-30.10	-
- Previously available NDCs	0.00	0.00	0.00	0.00	-
- New NDCs for existing drugs	0.00	152,706.88	152,706.88	-30.10	-
- New drugs	0.00	0.00	0.00	0.00	-
NDCs used in 1990 and 1992	7,690,741.00	7,047,674.04	-643,066.96	126.76	-8.36

ARKANSAS

CHANGES IN DRUG EXPENDITURES BY PATENT STATUS

Total Expenditure	1990	1992	Amount Change	Percent of total Change	1990 to 1992 Percent Change
Over-the-Counter in 90 & 92					
I. Total Expenditures, of which:	1,107,299.00	775,433.00	-331,866.00	100.00	-29.97
NDCs used in 1990 only	105,796.00	0.00	-105,796.00	31.88	-
NDCs used in 1992 only, of which:	0.00	11,907.00	11,907.00	-3.59	-
- Previously available NDCs	0.00	11,907.00	11,907.00	-3.59	-
- New NDCs for existing drugs	0.00	0.00	0.00	0.00	-
- New drugs	0.00	0.00	0.00	0.00	-
NDCs used in 1990 and 1992	1,001,503.00	763,526.00	-237,977.00	71.71	-23.76
II. Total Rebates	0.00	248,094.11	248,094.11	-	-
III. Total Expenditures Net Rebates, of which:	1,107,299.00	527,338.89	-579,960.11	100.00	-52.38
NDCs used in 1990 only	105,796.00	0.00	-105,796.00	18.24	-
NDCs used in 1992 only, of which:	0.00	11,279.61	11,279.61	-1.94	-
- Previously available NDCs	0.00	11,279.61	11,279.61	-1.94	-
- New drugs	0.00	0.00	0.00	0.00	-
NDCs used in 1990 and 1992	1,001,503.00	516,059.28	-485,443.72	83.70	-48.47
Single Source to Innov. Mult. Source					
I. Total Expenditures, of which:	1,011,161.00	919,228.00	-91,933.00	100.00	-9.09
NDCs used in 1990 only	12,218.00	0.00	-12,218.00	13.29	-
NDCs used in 1992 only, of which:	0.00	26,162.00	26,162.00	-28.46	-
- New NDCs for existing drugs	0.00	26,162.00	26,162.00	-28.46	-
- New drugs	0.00	0.00	0.00	0.00	-
NDCs used in 1990 and 1992	998,943.00	893,066.00	-105,877.00	115.17	-10.60
II. Total Rebates	0.00	211,906.52	211,906.52	-	-
III. Total Expenditures Net Rebates, of which:	1,011,161.00	707,321.48	-303,839.52	100.00	-30.05
NDCs used in 1990 only	12,218.00	0.00	-12,218.00	4.02	-
NDCs used in 1992 only, of which:	0.00	16,827.60	16,827.60	-5.54	-
- Previously available NDCs	0.00	16,827.60	16,827.60	-5.54	-
- New drugs	-0.00	0.00	0.00	0.00	-
NDCs used in 1990 and 1992	998,943.00	690,493.88	-308,449.12	101.52	-30.88

Total Expenditure	1990	1992	Amount Change	Percent of total Change	1990 to 1992 Percent Change
Prescription to OTC					
I. Total Expenditures, of which:	783.00	670.00	-113.00	100.00	-14.43
NDCs used in 1990 only	218.00	0.00	-218.00	192.92	-
NDCs used in 1992 only, of which:	0.00	55.00	55.00	-48.67	-
- Previously available NDCs	0.00	55.00	55.00	-48.67	-
- New NDCs for existing drugs	0.00	0.00	0.00	0.00	-
- New drugs	0.00	0.00	0.00	0.00	-
NDCs used in 1990 and 1992	565.00	615.00	50.00	-44.25	8.85
II. Total Rebates	0.00	18.47	18.47	-	-
III. Total Expenditures Net Rebates, of which:	783.00	651.53	-131.47	100.00	-16.79
NDCs used in 1990 only	218.00	0.00	-218.00	165.82	-
NDCs used in 1992 only, of which:	0.00	52.30	52.30	-39.78	-
- Previously available NDCs	0.00	52.30	52.30	-39.78	-
- New NDCs for existing drugs	0.00	0.00	0.00	0.00	-
- New drugs	0.00	0.00	0.00	0.00	-
NDCs used in 1990 and 1992	565.00	599.23	34.23	-26.04	6.06
Status Unknown in 1990					
I. Total Expenditures, of which:	4,307.00	0.00	-4,307.00	100.00	-
NDCs used in 1990 only	4,307.00	0.00	-4,307.00	100.00	-
NDCs used in 1992 only, of which:	0.00	0.00	0.00	0.00	-
- Previously available NDCs	0.00	0.00	0.00	0.00	-
- New NDCs for existing drugs	0.00	0.00	0.00	0.00	-
- New drugs	0.00	0.00	0.00	0.00	-
NDCs used in 1990 and 1992	0.00	0.00	0.00	0.00	-
II. Total Rebates	0.00	0.00	0.00	-	-
III. Total Expenditures Net Rebates, of which:	4,307.00	0.00	-4,307.00	100.00	-
NDCs used in 1990 only	4,307.00	0.00	-4,307.00	100.00	-
NDCs used in 1992 only, of which:	0.00	0.00	0.00	0.00	-
- Previously available NDCs	0.00	0.00	0.00	0.00	-
- New NDCs for existing drugs	0.00	0.00	0.00	0.00	-
- New drugs	0.00	0.00	0.00	0.00	-
NDCs used in 1990 and 1992	0.00	0.00	0.00	0.00	-

APPENDIX TABLE 7

ARKANSAS

CHANGES IN DRUG EXPENDITURES BY PATENT STATUS

Total Expenditure	1990	1992	Amount Change	Percent of total Change	1990 to 1992 Percent Change
New Single Source Since 1990					
I. Total Expenditures, of which:	112,458.00	3,835,519.00	3,723,061.00	100.00	3310.6
NDCs used in 1990 only	0.00	0.00	0.00	0.00	-
NDCs used in 1992 only, of which:	0.00	2,474,550.00	2,474,550.00	66.47	-
- Previously available NDCs	0.00	0.00	0.00	0.00	-
- New drugs	0.00	1,253,182.00	1,253,182.00	33.66	-
NDCs used in 1990 and 1992	112,458.00	1,221,368.00	1,221,368.00	32.81	-
II. Total Rebates	0.00	1,360,969.00	1,248,511.00	33.53	1110.2
III. Total Expenditures Net Rebates, of which:	112,458.00	563,415.77	563,415.77	-	-
	112,458.00	3,272,103.23	3,159,645.23	100.00	2809.6
NDCs used in 1990 only	0.00	0.00	0.00	0.00	-
NDCs used in 1992 only, of which:	0.00	2,128,398.85	2,128,398.85	67.36	-
- Previously available NDCs	0.00	0.00	0.00	0.00	-
- New drugs	0.00	1,033,974.31	1,033,974.31	32.72	-
NDCs used in 1990 and 1992	112,458.00	1,094,424.54	1,094,424.54	34.64	-
	112,458.00	1,143,704.38	1,031,246.38	32.64	917.01
New Innov. Mult. Source Since 1990					
I. Total Expenditures, of which:	25,365.00	940,492.00	915,127.00	100.00	3607.8
NDCs used in 1990 only	0.00	0.00	0.00	0.00	-
NDCs used in 1992 only, of which:	0.00	783,876.00	783,876.00	85.66	-
- Previously available NDCs	0.00	0.00	0.00	0.00	-
- New NDCs for existing drugs	0.00	777,203.00	777,203.00	84.93	-
- New drugs	0.00				-
NDCs used in 1990 and 1992	25,365.00	156,616.00	131,251.00	14.34	517.45
II. Total Rebates	0.00	248,026.05	248,026.05	-	-
III. Total Expenditures Net Rebates, of which:	25,365.00	692,465.95	667,100.95	100.00	2630.0
NDCs used in 1990 only	0.00	0.00	0.00	0.00	-
NDCs used in 1992 only, of which:	0.00	562,216.84	562,216.84	84.28	-
- Previously available NDCs	0.00	0.00	0.00	0.00	-
- New drugs	0.00	557,630.09	557,630.09	83.59	-
NDCs used in 1990 and 1992	0.00	4,586.75	4,586.75	0.69	-
	25,365.00	130,249.11	104,884.11	15.72	413.50

ARKANSAS

CHANGES IN DRUG EXPENDITURES BY PATENT STATUS

Total Expenditure	1990	1992	Amount Change	Percent of total Change	1990 to 1992 Percent Change
New Non-Innov. Mult Source Since 1990					
I. Total Expenditures, of which:	140,166.00	377,431.00	237,265.00	100.00	169.27
NDCs used in 1990 only	0.00	0.00	0.00	0.00	-
NDCs used in 1992 only, of which:	0.00	23,519.00	23,519.00	9.91	-
- Previously available NDCs	0.00	40.00	40.00	0.02	-
- New NDCs for existing drugs	0.00	23,479.00	23,479.00	9.90	-
- New drugs	0.00	0.00	0.00	0.00	-
NDCs used in 1990 and 1992	140,166.00	353,912.00	213,746.00	90.09	152.49
II. Total Rebates	0.00	26,146.73	26,146.73	-	-
III. Total Expenditures Net Rebates, of which:	140,166.00	351,284.27	211,118.27	100.00	150.62
NDCs used in 1990 only	0.00	0.00	0.00	0.00	-
NDCs used in 1992 only, of which:	0.00	20,486.92	20,486.92	9.70	-
- Previously available NDCs	0.00	37.06	37.06	0.02	-
- New NDCs for existing drugs	0.00	20,449.86	20,449.86	9.69	-
- New drugs	0.00	0.00	0.00	0.00	-
NDCs used in 1990 and 1992	140,166.00	330,797.35	190,631.35	90.30	136.00
New Over-the-Counter					
I. Total Expenditures, of which:	310.00	69,023.00	68,713.00	100.00	22165
NDCs used in 1990 only	0.00	0.00	0.00	0.00	-
NDCs used in 1992 only, of which:	0.00	48,004.00	48,004.00	69.86	-
- Previously available NDCs	0.00	0.00	0.00	0.00	-
- New NDCs for existing drugs	0.00	22,631.00	22,631.00	32.94	-
- New drugs	0.00	25,373.00	25,373.00	36.93	-
NDCs used in 1990 and 1992	310.00	21,019.00	20,709.00	30.14	6680.3
II. Total Rebates	0.00	17,597.87	17,597.87	-	-
III. Total Expenditures Net Rebates, of which:	310.00	51,425.13	51,115.13	100.00	16489
NDCs used in 1990 only	0.00	0.00	0.00	0.00	-
NDCs used in 1992 only, of which:	0.00	32,737.59	32,737.59	64.05	-
- Previously available NDCs	0.00	0.00	0.00	0.00	-
- New NDCs for existing drugs	0.00	17,356.56	17,356.56	33.96	-
- New drugs	0.00	15,381.02	15,381.02	30.09	-
NDCs used in 1990 and 1992	310.00	18,687.54	18,377.54	35.95	5928.2

Appendix Table 8

Changes in Drug Expenditures by Therapeutic Category

APPENDIX TABLE 8

ARKANSAS

CHANGES IN DRUG EXPENDITURES BY THERAPEUTIC CATEGORY

Total Expenditure	1990	1992	Amount Change	Percent of total Change	1990 to 1992 Percent Change
State Total					
I. Total Expenditures, of which:	27,771,519.00	33,915,865.00	6,144,346.00	100.00	22.12
NDCs used in 1990 only	491,628.00	0.00	-491,628.00	-8.00	-
NDCs used in 1992 only, of which:	0.00	4,077,919.00	4,077,919.00	66.37	-
- Previously available NDCs	0.00	571,714.00	571,714.00	9.30	-
- New NDCs for existing drugs	0.00	2,252,791.00	2,252,791.00	36.66	-
- New drugs	0.00	1,253,414.00	1,253,414.00	20.40	-
NDCs used in 1990 and 1992	27,279,891.00	29,837,946.00	2,558,055.00	41.63	9.38
II. Total Rebates	0.00	6,049,524.19	6,049,524.19	-	-
III. Total Expenditures Net Rebates, of which:	27,771,519.00	27,866,340.81	94,821.81	100.00	0.34
NDCs used in 1990 only	491,628.00	0.00	-491,628.00	-518.5	-
NDCs used in 1992 only, of which:	0.00	3,354,016.30	3,354,016.30	3537.2	-
- Previously available NDCs	0.00	457,506.28	457,506.28	482.49	-
- New NDCs for existing drugs	0.00	1,782,117.70	1,782,117.70	1879.4	-
- New drugs	0.00	1,114,392.32	1,114,392.32	1175.2	-
NDCs used in 1990 and 1992	27,279,891.00	24,512,324.51	-2,767,566.49	-2919	-10.15
Analgesics, Narcotic					
I. Total Expenditures, of which:	416,603.00	527,034.00	110,431.00	100.00	26.51
NDCs used in 1990 only	5,838.00	0.00	-5,838.00	-5.29	-
NDCs used in 1992 only, of which:	0.00	118,949.00	118,949.00	107.71	-
- Previously available NDCs	0.00	45,553.00	45,553.00	41.25	-
- New NDCs for existing drugs	0.00	64,783.00	64,783.00	58.66	-
- New drugs	0.00	8,613.00	8,613.00	7.80	-
NDCs used in 1990 and 1992	410,765.00	408,085.00	-2,680.00	-2.43	-0.65
II. Total Rebates	0.00	39,241.79	39,241.79	-	-
III. Total Expenditures Net Rebates, of which:	416,603.00	487,792.21	71,189.21	100.00	17.09
NDCs used in 1990 only	5,838.00	0.00	-5,838.00	-8.20	-
NDCs used in 1992 only, of which:	0.00	108,901.57	108,901.57	152.97	-
- Previously available NDCs	0.00	41,655.49	41,655.49	58.51	-
- New NDCs for existing drugs	0.00	59,790.86	59,790.86	83.99	-
- New drugs	0.00	7,455.22	7,455.22	10.47	-
NDCs used in 1990 and 1992	410,765.00	378,890.63	-31,874.37	-44.77	-7.76

ARKANSAS

CHANGES IN DRUG EXPENDITURES BY THERAPEUTIC CATEGORY

Total Expenditure	1990	1992	Amount Change	Percent of total Change	1990 to 1992 Percent Change
Analgesics, Other					
I. Total Expenditures, of which:	769,892.00	740,966.00	-28,926.00	100.00	-3.76
NDCs used in 1990 only	55,835.00	0.00	-55,835.00	193.03	-
NDCs used in 1992 only, of which:	0.00	86,088.00	86,088.00	-297.6	-
- Previously available NDCs	0.00	17,889.00	17,889.00	-61.84	-
- New NDCs for existing drugs	0.00	19,043.00	19,043.00	-65.83	-
- New drugs	0.00	49,156.00	49,156.00	-169.9	-
NDCs used in 1990 and 1992	714,057.00	654,878.00	-59,179.00	204.59	-8.29
II. Total Rebates	0.00	36,850.43	36,850.43	-	-
III. Total Expenditures Net Rebates, of which:	769,892.00	704,115.57	-65,776.43	100.00	-8.54
NDCs used in 1990 only	55,835.00	0.00	-55,835.00	84.89	-
NDCs used in 1992 only, of which:	0.00	78,781.48	78,781.48	-119.8	-
- Previously available NDCs	0.00	15,795.59	15,795.59	-24.01	-
- New NDCs for existing drugs	0.00	18,347.25	18,347.25	-27.89	-
- New drugs	0.00	44,638.64	44,638.64	-67.86	-
NDCs used in 1990 and 1992	714,057.00	625,334.09	-88,722.91	134.89	-12.43
Anti-arthritics					
I. Total Expenditures, of which:	918,308.00	1,072,004.00	153,696.00	100.00	16.74
NDCs used in 1990 only	3,547.00	0.00	-3,547.00	-2.31	-
NDCs used in 1992 only, of which:	0.00	189,517.00	189,517.00	123.31	-
- Previously available NDCs	0.00	2,460.00	2,460.00	1.60	-
- New NDCs for existing drugs	0.00	56,873.00	56,873.00	37.00	-
- New drugs	0.00	130,184.00	130,184.00	84.70	-
NDCs used in 1990 and 1992	914,761.00	882,487.00	-32,274.00	-21.00	-3.53
II. Total Rebates	0.00	71,349.18	71,349.18	-	-
III. Total Expenditures Net Rebates, of which:	918,308.00	1,000,656.82	82,346.82	100.00	8.97
NDCs used in 1990 only	3,547.00	0.00	-3,547.00	-4.31	-
NDCs used in 1992 only, of which:	0.00	160,122.98	160,122.98	194.45	-
- Previously available NDCs	0.00	1,871.74	1,871.74	2.27	-
- New NDCs for existing drugs	0.00	40,326.77	40,326.77	48.97	-
- New drugs	0.00	117,924.46	117,924.46	163.20	-
NDCs used in 1990 and 1992	914,761.00	840,531.83	-74,229.17	-90.14	-8.11

ARKANSAS

CHANGES IN DRUG EXPENDITURES BY THERAPEUTIC CATEGORY

Total Expenditure	1990	1992	Amount Change	Percent of total Change	1990 to 1992 Percent Change
Anti-asthmatics					
I. Total Expenditures, of which:	1,031,498.00	1,436,549.00	405,051.00	100.00	39.27
NDCs used in 1990 only	7,556.00	0.00	-7,566.00	-1.87	-
NDCs used in 1992 only, of which:	0.00	2,893.00	2,893.00	0.71	-
- Previously available NDCs	0.00	2,210.00	2,210.00	0.55	-
- New NDCs for existing drugs	0.00	683.00	683.00	0.17	-
- New drugs	0.00	0.00	0.00	0.00	-
NDCs used in 1990 and 1992	1,023,932.00	1,433,656.00	409,724.00	101.15	40.01
II. Total Rebates	0.00	416,443.96	416,443.96	-	-
III. Total Expenditures Net Rebates, of which:	1,031,498.00	1,020,105.04	-11,392.96	100.00	-1.10
NDCs used in 1990 only	7,566.00	0.00	-7,566.00	66.41	-
NDCs used in 1992 only, of which:	0.00	2,342.55	2,342.55	-20.56	-
- Previously available NDCs	0.00	1,730.13	1,730.13	-15.19	-
- New NDCs for existing drugs	0.00	612.42	612.42	-5.38	-
- New drugs	0.00	0.00	0.00	0.00	- -
NDCs used in 1990 and 1992	1,023,932.00	1,017,762.49	-6,169.51	54.15	-0.60
Anti-histamines					
I. Total Expenditures, of which:	98,898.00	112,741.00	13,843.00	100.00	14.00
NDCs used in 1990 only	2,758.00	0.00	-2,758.00	-19.92	-
NDCs used in 1992 only, of which:	0.00	3,197.00	3,197.00	23.09	-
- Previously available NDCs	0.00	1,826.00	1,826.00	13.19	-
- New NDCs for existing drugs	0.00	1,371.00	1,371.00	9.90	-
- New drugs	0.00	0.00	0.00	0.00	-
NDCs used in 1990 and 1992	96,140.00	109,544.00	13,404.00	96.83	13.94
II. Total Rebates	0.00	6,958.17	6,958.17	-	-
III. Total Expenditures Net Rebates, of which:	98,898.00	105,782.83	6,884.83	100.00	6.96
NDCs used in 1990 only	2,758.00	0.00	-2,758.00	-40.06	-
NDCs used in 1992 only, of which:	0.00	2,261.58	2,261.58	32.85	-
- Previously available NDCs	0.00	1,102.20	1,102.20	16.01	-
- New NDCs for existing drugs	0.00	1,159.38	1,159.38	16.84	-
- New drugs	0.00	0.00	0.00	0.00	-
NDCs used in 1990 and 1992	96,140.00	103,521.25	7,381.25	107.21	7.68

MEDICAL ASSISTANCE BULLETIN

COMMONWEALTH OF PENNSYLVANIA • DEPARTMENT OF PUBLIC WELFARE

DATE OF ISSUE	EFFECTIVE DATE	NUMBER
May 31, 1991	April 1, 1991	1121-91-01

SUBJECT	BY
Manufacturers' Rebate Program	*Gerald F. Radke* (signature) GERALD F. RADKE Deputy Secretary for Medical Assistance Programs

PURPOSE:

To inform all pharmacies and licensed prescribers that the Department will no longer pay for any drug products marketed by a company that did not enter into a rebate agreement with the federal government.

SCOPE:

This bulletin applies to all pharmacies and licensed prescribers enrolled in the Medical Assistance Program.

BACKGROUND:

On November 5, 1990, Congress enacted the Omnibus Budget Reconciliation Act of 1990 (OBRA '90). Section 4401 of OBRA now requires drug companies that wish to have their products covered through a Medicaid program to enter into and have in effect a rebate agreement with the federal government. Under the provisions of OBRA '90, those companies that choose to participate in the national rebate program will have their products covered through the state Medicaid programs. Conversely, those companies that choose not to participate, will not have their products covered.

On April 1, 1991, the Medical Assistance Program, under the provisions of OBRA '90, began to preclude payment for any legend or nonlegend pharmaceutical product unless the drug company that markets the product has entered into the national rebate agreement with the federal government. This payment policy allows Pennsylvania to comply with federal law and to share in the rebates remitted by the participating companies.

POLICY:

Effective April 1, 1991, the Department will apply 55 Pa. Code, Chapter 1121 as follows:

COMMENTS AND QUESTIONS REGARDING THIS BULLETIN SHOULD BE DIRECTED TO: Pharmacy and Ancillary Services Section P. O. Box 8043 1-800-932-0938 Harrisburg, Pennsylvania 17105	DISTRIBUTION 10-91-05 28-91-03 01-91-08 11-91-07 29-91-03 02-91-04 12-91-04 30-91-03 03-91-06 19-91-06 33-91-03 04-91-06 26-91-04 49-91-04

§ 1121.2.   Definitions.

The following words and terms when used in this chapter shall have the following meaning, unless the context clearly indicates otherwise:

* * * * *

OBRA '90 — The Omnibus Budget Reconciliation Act of 1990 (Public Law 101-508).

* * * * *

§ 1121.54.   Noncompensable services and items.

Payment will not be made to a pharmacy for the following services and items:

* * * * *

(24) Legend and nonlegend pharmaceutical products distributed by a company that has not entered into a national rebate agreement with the federal government as provided under Section 4401 of OBRA '90, except for those specific drug products authorized by the federal government as essential to the health of a medical assistance recipient. The Department will issue a special list comprised of those companies that signed rebate agreements with the federal government and those products authorized as essential to the health of a medical assistance recipient. Pharmacies are responsible for checking the list before filling the prescription.

* * * * *

PROCEDURES:

In a separate Medical Assistance Bulletin, issued March 29, 1991, the Department sent to each enrolled pharmacy and licensed prescriber, a list of those drug companies that are participating in the national rebate program. The list included both the name and labeler code of each participating company. The labeler code represents the first five digits of the 11 digit National Drug Code (NDC) number which you now use to submit claims for prescriptions or over-the-counter (OTC) orders.

In addition, for those drug companies that choose not to participate in the national rebate program, the federal government may authorize payment for a specific drug distributed by that company if, in the determination of the federal government, that drug product is essential to the health of the Medicaid recipient. The list will also include these specific drug products.

Please refer to this list before submitting a claim to the Department. Effective April 1, 1991, the Department will reject any claim submitted with a date of service on or after that date for a legend or OTC product whose company name and labeler code is not on this list, except for those specific drug products which the federal government authorizes as essential to the health of a Medicaid recipient.

> NOTE: PLEASE BE CERTAIN TO REFLECT ON THE CLAIM FORM, THE CORRECT AND COMPLETE 11 DIGIT NDC NUMBER OF THE DRUG PRODUCT ACTUALLY DISPENSED. UNDER NO CIRCUMSTANCES ARE YOU PERMITTED TO SUBSTITUTE THE NDC NUMBER OF A DRUG COMPANY PARTICIPATING IN THE REBATE PROGRAM FOR ONE THAT IS NOT PARTICIPATING OR TO USE ANY OTHER NDC NUMBER FOR A DRUG PRODUCT OTHER THAN THE ONE THAT IS ACTUALLY DISPENSED.

NEXT STEP:

The Department will amend the regulations in the near future.

Appendix C

Example Communication from HCFA to States

MEDICAID DRUG REBATE PROGRAM

Release No. 10

NOTE TO: All State Medicaid Directors

* * * IMMEDIATE ATTENTION REQUIRED * * *

This notice is to inform you of one more
last additional drug labeler code that is
retroactively effective for the period beginning January 1,
1991. The correspondence for this labeler code was misfiled
and just discovered. The new labeler code is 50564 and belongs
to Jerome Stevens Pharmaceuticals, Inc. The contact
information is attached. We ask that you disseminate this
information to the pharmacy community as soon as possible. The
name and address of the company is as follows:

> Jerome Genderm Corporation
> 425 Huehl Road
> Northbrook, Illinois 60062
> Telephone: (708) 564-5435

Also, we just received a notice from Solvay Pharmaceuticals
that Reid-Rowell of Marietta, Georgia (Labeler Code 00032) will
become Solvay Pharmaceuticals effective June 14, 1991.

At the request of State technical contact personnel, we are
forwarding to you the list containing the names, addresses and
telephone numbers of the technical and policy contacts for each
State. This information was recently shared with each of the
participating drug labelers.

Our personnel remain busy contacting those drug labelers that
have not submitted baseline and/or first quarter pricing data.
By July 3, we plan to send to each drug labeler a listing of
their drug product information to allow them the opportunity to
correct existing data or provide new product data before
transmission to the States. We remain committed to mailing to
you the complete data base on or about July 15.

Finally, we are enclosing another list of those drug labelers that are eligible to participate on July 1. The list is accompanied by the names, addresses and telephone numbers of the legal, financial and technical contacts for each labeler code.

Please continue to refer your questions to us by using the Drug Rebate Hotline number at (301) 966-3249.

Christine Nye
Director
Medicaid Bureau

Attachments: 2

cc:

All State Technical Contacts
All Associate Regional Administrators for Medicaid
All Regional Representatives

EFFECTIVE JULY 1, 1991

Labeler Code	Name
52349	MED-TEK PHARMACEUTICALS, INC.
52891	MEDICAL MARKET SPECIALTIES, INC.
54538	LABORATORY A, INC.
54807	R.I.D., INC.
54838	SILARX PHARMACEUTICALS, INC.
54921	ICI PHARMACEUTICALS P.R., INC.
58768	CIBA VISION OPHTHALMICS

Appendix D

Expense and Revenue Forms on Rebate Program Operations

MEDICAID DRUG REBATE PROGRAM: ESTIMATED ANNUAL EXPENSES
CALENDAR YEAR 1991 - START-UP YEAR

A. SALARY AND BENEFITS EMPLOYEE TYPE	I ANNUAL SALARY	II ANNUAL FRINGES	III % TIME ON REBATES	IV TYPE	V COST DUE TO REBATES
1. Pharmacy Consultant					
2. Rebate Program Director*					
3. Other Rebate Staff					
4. Other:					
5. Other:					
6. Other:					
Subtotal					

B. OFFICE EXPENSES	TYPE	COST DUE TO REBATES
1. Mailing Invoices (postage)		
2. Telephone		
3. Photocopying/Printing		
4. Other		
Subtotal		

C. PROGRAMMING EXPENSES	TYPE	COST DUE TO REBATES
1. Programming costs to develop quarterly reports system		
2. Programming to change formularies, prior authorization		
3. Generation of quarterly utilization data, rebate invoices		
4. Ad-Hoc reports to verify utilization data when questioned		
5. Other		
Subtotal		

D. COMPUTER EQUIPMENT/SYSTEMS PURCHASES	TYPE	COST DUE TO REBATES
Please specify equipment purchased/ acquisition cost:		
Subtotal		

E. OTHER	TYPE	COST DUE TO REBATES
Describe:		

F. TOTAL COSTS		TOTAL COST DUE TO REBATES
Sum of A through E.		

MEDICAID DRUG REBATE PROGRAM: ESTIMATED ANNUAL EXPENSES
CALENDAR YEAR 1992

A. SALARY AND BENEFITS EMPLOYEE TYPE	I ANNUAL SALARY	II ANNUAL FRINGES	III % TIME ON REBATES	IV TYPE	V COST DUE TO REBATES
1. Pharmacy Consultant					
2. Rebate Program Director*					
3. Other Rebate Staff					
4. Other:					
5. Other:					
6. Other:					
Subtotal					

B. OFFICE EXPENSES	TYPE	COST DUE TO REBATES
1. Mailing Invoices (postage)		
2. Telephone		
3. Photocopying/Printing		
4. Other		
Subtotal		

C. PROGRAMMING EXPENSES	TYPE	COST DUE TO REBATES
1. Programming costs to develop quarterly reports system		
2. Programming to change formularies, prior authorization		
3. Generation of quarterly utilization data, rebate invoices		
4. Ad-Hoc reports to verify utilization data when questioned		
5. Other		
Subtotal		

D. COMPUTER EQUIPMENT/SYSTEMS PURCHASES Please specify equipment purchased/ acquisition cost:	TYPE	COST DUE TO REBATES
Subtotal		

E. OTHER Describe:	TYPE	COST DUE TO REBATES

F. TOTAL COSTS Sum of A through E.		TOTAL COST DUE TO REBATES

MEDICAID DRUG REBATE PROGRAM: ESTIMATED ANNUAL EXPENSES
CALENDAR YEAR 1993

A. SALARY AND BENEFITS EMPLOYEE TYPE	I ANNUAL SALARY	II ANNUAL FRINGES	III % TIME ON REBATES	IV TYPE	V COST DUE TO REBATES
1. Pharmacy Consultant					
2. Rebate Program Director*					
3. Other Rebate Staff					
4. Other:					
5. Other:					
6. Other:					
Subtotal					

B. OFFICE EXPENSES	TYPE	COST DUE TO REBATES
1. Mailing Invoices (postage)		
2. Telephone		
3. Photocopying/Printing		
4. Other		
Subtotal		

C. PROGRAMMING EXPENSES	TYPE	COST DUE TO REBATES
1. Programming costs to develop quarterly reports system		
2. Programming to change formularies, prior authorization		
3. Generation of quarterly utilization data, rebate invoices		
4. Ad-Hoc reports to verify utilization data when questioned		
5. Other		
Subtotal		

D. COMPUTER EQUIPMENT/SYSTEMS PURCHASES Please specify equipment purchased/ acquisition cost:	TYPE	COST DUE TO REBATES
Subtotal		

E. OTHER Describe:	TYPE	COST DUE TO REBATES

F. TOTAL COSTS Sum of A through E.	TOTAL COST DUE TO REBATES

MEDICAID DRUG REBATE PROGRAM: ESTIMATED REVENUES

Year	Rebates Invoiced To Manufacturers	Rebates Collected From Manufacturers
CALENDAR YEAR 1991	$	$
CALENDAR YEAR 1992	$	$
CALENDAR YEAR 1993	$	$

Appendix A

State Medicaid Site Visit Interview Protocols

State Medicaid Telephone Interview Protocols

MEDICAID DRUG REBATE PROGRAM EVALUATION
STATE MEDICAID AGENCY INTERVIEW OUTLINE

INTRODUCTION

Explain the project and introduce the interview team. We are focusing on a defined set of components of the OBRA '90 changes to Medicaid prescription drug programs, specifically: 1) implementation of rebates to be collected from drug manufacturers based on use of their products; 2) discontinuation of the use of formularies (until OBRA '93); 3) changes in state prior authorization programs; 4) mandatory coverage of newly approved drugs for six months; and 5) budgetary changes resulting from the rebate program's implementation. Although other changes, such as expansion of eligibility and provision for drug utilization review, occurred at the same time as the rebate program, these are not the focus of this evaluation and to the extent possible, should be excluded from assessments.

Assure the respondent of confidentiality and explain the processes for data protection at the University of Minnesota. Interview summaries will be sent to each respondent for review and comment.   Each part of this summary instrument will be directed to the person in the agency most familiar with the specific subject area.

I. OVERALL ORGANIZATION OF THE MEDICAID AGENCY AND PRESCRIPTION DRUG BENEFIT F ROGRAM

1. Please describe the overall organizational structure of the Medicaid program in this state. If possible, please provide an organizational chart.

    a. What are the main departments and which ones does the pharmacy program interface with?

    b. To whom does the director of the pharmacy program report?

    c. To whom does the director/coordinator of the rebate program report?

    d. Are there any other reporting relationships of relevance to the rebate program?

2. What is the size of the current annual budget for the Medicaid program?

3. What is the size of the current annual budget for the prescription drug benefit program? Is there a separate line item for this program?

4. How many staff are there currently for the prescription drug program, and what are their functions:
   a. Professional staff

   b. Support staff

   c. Contract staff

5. How have staffing levels changed since the rebate program was introduced?

6. Who performs the drug program's claims processing functions:
   a. State agency staff

   b. Contract claims processor

   c. Other

7. If a claims processing contractor is used, what is the dollar amount of the contract and what is included for that price? Can the amount expended for prescription drug claims processing be separated out? Can rebate program functions be separated out?

8. Has the prescription drug program been reorganized during the past five years for any reason, and if so, did this affect implementation of the Rebate program?

9. Please describe any other overall organization issues that you feel may have had an important effect on your prescription drug program or on your ability to implement the rebate program.

II. PRESCRIPTION DRUG BENEFIT PROGRAM CHARACTERISTICS

The following questions relate to the characteristics and operation of the prescription drug benefit program.

1. Describe the history and features of the prescription drug benefit program and any restrictions on utilization including:
    a. Formularies in place prior to OBRA '90. Are there any plans to institute a formulary at this time, given recent changes in the law?

    b. Prior authorization programs

    c. Global restrictions on number of prescriptions that can be filled

    d. Lock-in programs for high utilizers

    e. Generic drug incentives and provisions of state law for overriding these

    f. Coverage of OTC drug products

    g. Other

2. What was the volume of number of prescriptions handled by the drug benefit program during the most recent fiscal year? What dollar claims volume was experienced, for the same year? What seems to be the general trend in prescription drug expenditures, for your state?
(Review 2082 data and try to explain any discrepancies or large variations since 1990.)
(Review pricing flow charts, if developed for state, and obtain any additional details.)

3. Are any drugs covered by the state for which a rebate agreement has not been signed? If so, which drugs and why are they covered?

4. Does the state have any separate rebate agreements with manufacturers? Approximately how many?

5. How did the implementation of the rebate program affect pharmacies? Were there any changes in the way the Medicaid pharmacy program operated with respect to:
    a. Submission of claims and computer programs used by pharmacies?

    b. Audits of claims?

    c. Other needed liaison with pharmacies to implement the program?

III. HISTORY OF IMPLEMENTATION OF OBRA '90 DRUG REBATE PROGRAM

We would like to reconstruct the history of the implementation of the drug rebate program in your state, to the best of your knowledge. Please try to recall what changes were made and when they occurred, for the next few questions.

1. When did you first hear about the drug rebate program and OBRA '90, and how? Do you think that this program was needed or not, and why?

2. Who was made responsible for implementation of the program?

3. How were funds and staff made available for planning the program, and how were these resources obtained? Were funds obtained from general operating budgets, or was a separate line item developed for the rebate program?

4. How did you decide which functions of the rebate program would be conducted internally and which ones would be done by outside contractor?

5. Which departments and employees were involved in the planning stages? Was a task force designated to plan or carry out the program? If so, who was on the task force? Were any persons from outside the agency involved in planning?

6. What were the major stages in implementing the program, and when did these occur? For example:
     hiring of staff;

     development or modification of utilization reporting mechanisms;

     elimination of formularies or changes to prior authorization programs;

     institution of billing procedures for manufacturers;

     changes to coding systems.

IV. COSTS RELATED TO DEVELOPMENT OF THE PROGRAM

1. What costs were associated with the program's development? Please try to estimate, for the first year of the program (1991), the components of cost:

    a. Staff time spent on development: pharmacy director, rebate director and other staff (estimate # of hours or FTEs)

    b. New data systems and programming costs, including development of new report formats

    c. Changes made to the drug coding system (state-specific vs. NDCs)

    d. Changes made to claims processing contracts

    e. New auditing functions with respect to pharmacy claims

    f. Any new equipment or space needs; supplies

    g. Development of advisory committees, if applicable

2. Were any major changes made in the staffing of the drug unit (or claims processing contractor) as a result of the need to implement the rebate program?

3. What types of changes were made in terms of developing a unit to handle billing and collections of rebates from manufacturers?

4. What types of technical assistance were received from various sources in order to develop the program? What were the sources for this assistance, and if relevant, the costs associated? What assistance was received from:

    a. HCFA

    b. Contractors or consultants

    c. Other sources

5. Were there any types of technical assistance that would have been helpful, but that were not available? What would have been most helpful?

V. SPECIFIC CHANGES MADE TO DRUG BENEFIT POLICY AS A RESULT OF THE REBATE PROGRAM

1. What changes were made in the prescription drug benefit program due to rebate program features with respect to:

    a. Formularies in place prior to OBRA '90

    b. Prior authorization programs

    c. Claims processing procedures and policies

    d. Coding of prescription drug claims, including those for "generic" products

    e. Pharmacies' online claims systems

2. Did the rebate program change the process for making state policy on drug benefit program restrictions, and if so, how?
    a. Was a formulary committee in existence prior to OBRA '90 and if so, was it disbanded or did its function change?

    b. Has any legislative oversight been conducted on drug policy changes, and if so, what is the nature of that oversight?

    c. Have any other aspects of the state drug benefit policy-making process changed?

3. How did OBRA '90 affect your ability to estimate future drug benefit utilization and expenditures?

4. For different types of drugs, are there any specific features or effects of the rebate program that should be noted?
    a. Generic drugs

    b. OTC drugs

    c. Drugs with low utilization

    d. Drugs with high utilization

5. Please describe in detail how your state conducts the process of developing rebate bills to manufacturers, and typical turnaround time for each stage:

    a. Development of quarterly utilization data

    b. Submission of data to HCFA

    c. Receipt of per-unit rebate amounts from HCFA

    d. Generation of bills to manufacturers

    e. Collection of revenues from manufacturers

How has the turnaround time for each stage of the process changed as the program has matured?

6. What is the role of HCFA versus the role of the state in terms of operating the rebate program?

7. How are the rebate program revenues allocated in the state: to general revenues, to the Medicaid program, or to some other purpose? How have the revenues been utilized?

8. Please describe the process of dispute resolution used by your state when manufacturers have challenged rebate program bills as submitted.

    a. What types of additional data are requested by and provided to manufacturers?

    b. Who pays for the development of additional reports or data?

    c. Are manufacturers relatively consistent from quarter to quarter with their payments (or lack of payments) or their disputes?

    d. What technical direction or assistance has HCFA provided with respect to disputed rebates?

    e. What is your state's position on holding hearings with the manufacturers? Has your general counsel become involved in the program at any time?

    f. How do you feel about binding arbitration as a method for settling disputed rebates?

VI. OPERATIONS OF PRIOR AUTHORIZATION PROGRAM

(Use this section only if the state has a prior authorization program in place currently or at some other time post-OBRA '90.)

1. What drugs are covered by the state's prior authorization program? Why are these drugs on restricted status?

2. How is the prior authorization program operated (i.e., integral to the pharmacy benefit program, as a freestanding unit, or by contractor)? How is it organized?

3. How many 72-hour emergency supply prescriptions have been dispensed for the most recent fiscal year under the prior authorization program? Has this changed over time and if so, how?

4. Did the type or number of products on prior authorization change as a result of OBRA '90? Why or why not? If a formulary was used pre-OBRA '90, to what extent did the prior authorization program replace it?

5. What are the costs of operating the prior authorization program?

VII. ONGOING COSTS RELATED TO REBATE PROGRAM OPERATIONS

We would like to assess the ongoing costs related to the rebate program operations. At this time, we would like to obtain your current staffing levels and other costs related to the operation of the program. In addition, we would like to leave with you a chart of costs for the last few years, to be completed to the best of your ability.
(Note: in Missouri, we will use the interview as a means to develop the categories that should be represented on the chart, then mail them the chart to be completed.

Are any major future changes expected in terms of costs of the rebate program?

VIII. OVERVIEW OF PROGRAM SUCCESSES AND OBSTACLES

1. In your estimation, what have been the actual savings (or costs) resulting from the OBRA '90 drug rebate program? Please tell us as much as possible about how you have estimated these savings (or costs).
(Note: the state's impressions will be compared later with claims data, for the MSIS case study states.)

2. In your opinion, how well has the program worked overall? What are its major strengths and weaknesses?

3. How is the program viewed by pharmacy providers in the state?

4. What changes would you suggest making to the rebate program in the future? Why?

5. What have been the major benefits gained from the program?

6. What have been the major costs associated with the program?

Conclude by thanking the persons interviewed, noting that written notes will be sent for their review and comment.

INTRODUCTION

Explain the project. We are evaluating the rebate program, focusing on a defined set of components of the OBRA '90 changes to Medicaid prescription drug programs, specifically: 1) implementing rebates to be collected from drug manufacturers, based on use of their products; 2) discontinuing formularies (until OBRA '93); 3) relevant changes in state prior authorization programs; 4) mandatory coverage of newly approved drugs for six months; and 5) the costs of implementing the rebate program. Although other changes, such as expansion of eligibility and provision for drug utilization review, occurred at the same time as the rebate program, these are not the focus of this evaluation and to the extent possible, should be excluded from assessments.

Assure the respondent(s) of confidentiality. Each part of this summary instrument will be directed to the person in the agency most familiar with the specific subject area, but most will be first addressed to the prescription drug program director.

I. OVERALL ORGANIZATION OF THE MEDICAID AGENCY AND PRESCRIPTION DRUG BENEFIT PROGRAM

1. Please describe the overall organizational structure of the Medicaid program in this state. If possible, please send us an organizational chart.

    a. What are the main departments and which ones does the pharmacy program interface with?

    b. Who do you (the prescription drug benefit program director) report to?

    c. Who coordinates the rebate program? Who does that person report to?

    d. Are there any other reporting relationships of relevance to the rebate program?

2. How have staffing levels for the prescription drug benefit program changed since the rebate program was introduced? How many staff (FTEs) are there currently?

3. Who performs claims processing functions for drug claims:
    a. State Medicaid agency staff
    b. Contract claims processor (who is it?) (Is there a separate contract for rebate administration?)
    c. Other

II. PRESCRIPTION DRUG BENEFIT PROGRAM CHARACTERISTICS

The following questions relate to the characteristics of the prescription drug program.

1. Describe the history and features of the prescription drug benefit program and any restrictions on utilization including:
    a. Was there a formulary in place prior to OBRA '90? Are there any plans to institute a formulary at this time, given recent changes in the law?

    b. Is there a prescription drug prior authorization program? Please describe.

    c. Are there any other restrictions on prescription drug benefits?

2. What seems to be the trend in prescription drug expenditures, for your state? (May review 2082 data and ask for explanation of any large changes.)

3. Does your state cover any drugs that are not included in HCFA's rebate agreements? If so, which drugs and why are they covered?

4. Does your state have any separate rebate agreements with manufacturers? Approximately how many drugs are covered under these agreements?

III. HISTORY OF IMPLEMENTING OBRA '90 DRUG REBATE PROGRAM

We would like to reconstruct the history of implementation of the drug rebate program in your state, to the best of your knowledge.

1. Who was made responsible for implementing the program?

2. How were funds and staff made available for planning the program, and how were these resources obtained? (Were general operating budgets used, or was a separate line item developed for the rebate program?)

3. Who was involved in the planning stages? Was a task force designated to plan or carry out the program?   Was anyone from outside the agency involved in planning?

4. What were the major stages in implementing the program, and when did these occur? For example:
    a. hiring staff;
    b. developing or modifying utilization reporting based on claims;
    c. changing state drug codes to NDCs
    d. eliminating formularies or changes to prior authorization programs;
    e. developing invoices for rebates.

IV. COSTS RELATED TO OPERATION OF THE REBATE PROGRAM

1. Did you hire any new staff for the prescription drug unit as a result of the rebate program? Were any major changes made to the claims processing contract (if any) as a result of the rebate program?

2. What types of changes were made in staffing or workload of existing staff to handle billing and collection of rebates from manufacturers?

3. What types of technical assistance were received from various sources in order to develop the program? Were there any costs for this assistance? Was any assistance received from:
   - a. HCFA
   - b. Contractors or consultants
   - c. Other sources

4. Were there any types of technical assistance that would have been helpful, but that were not available? What would have been most helpful?

5. We will send you a brief form to complete on the costs of operating the rebate program. Possible components of cost will include:

   a. Staff time spent on development: pharmacy director, rebate director and other staff (estimate # of hours and hourly rates)

   b. New data systems and programming costs, including development of new report formats

   c. Changes made to claims processing

   d. New auditing functions on pharmacy claims

   e. Any new equipment or space needs; supplies, telephones and office operations expenses

   f. Development of advisory committees, if applicable

V. REBATE PROGRAM OPERATIONAL CONSIDERATIONS

1. Please describe how your state conducts the process of developing rebate bills to manufacturers, and typical turnaround time for each stage:

      a. Developing quarterly utilization data
      b. Submitting utilization data to HCFA
      c. Receiving per-unit rebate amounts from HCFA
      d. Sending invoices to manufacturers
      e. Collecting revenues from manufacturers

2. How are the rebate program revenues allocated in the state: to general revenues, to the Medicaid program, or to some other purpose? How have the revenues been utilized?

3. How does your state resolve questions when manufacturers disagree with rebate program bills as submitted? Each quarter, about how many manufacturer invoices are not paid due to questions or disputes? What proportion of the rebates billed are currently still unresolved?

VI. OPERATIONS OF PRIOR AUTHORIZATION PROGRAM

(Use this section only if the state has a prior authorization program in place currently or at some other time post-OBRA '90.)

1. Why are some drugs on prior authorization status? What are the major therapeutic categories of drugs on prior authorization? How many therapeutic categories? How many drug entities?

2. How is the prior authorization program operated (i.e., integral to the pharmacy benefit program, as a freestanding unit, or by contractor)? How is it organized?

3. Have many 72-hour emergency supply prescriptions been dispensed under the prior authorization program?

4. Did the type or number of products on prior authorization change as a result of OBRA '90? Why or why not? If a formulary was used pre-OBRA '90, to what extent did the prior authorization program replace it?

5. What are the costs of operating the prior authorization program? How many staff work in the prior authorization unit?

VIII. OVERVIEW OF PROGRAM SUCCESSES AND OBSTACLES

1. In your estimation, have there been actual savings (or costs) resulting from the OBRA '90 drug rebate program? Please tell us as much as possible about how you have estimated these savings (or costs).

2. In your opinion, how well has the program worked overall? What are its major strengths and weaknesses?

3. How is the program viewed by pharmacies and other providers in the state?

4. What changes would you suggest making to the rebate program in the future?

Conclude by thanking the persons interviewed, noting that written notes will be sent for their review and comment.

Appendix B

Example Communications to Providers on Rebate Program

MEDICAL ASSISTANCE BULLETIN

COMMONWEALTH OF PENNSYLVANIA ● DEPARTMENT OF PUBLIC WELFARE

DATE OF ISSUE	EFFECTIVE DATE	NUMBER
June 3, 1991	April 1, 1991	See Below *

SUBJECT	BY
Manufacturers Rebate Program Additional Participating Drug Companies	*[signature]* GERALD F. RADKE Deputy Secretary for Medical Assistance Programs

PURPOSE:

The purpose of this bulletin is to provide an updated list of those drug companies that are participating in the manufacturers rebate program.

SCOPE:

This bulletin applies to all pharmacies and licensed prescribers enrolled in the Medical Assistance Program.

BACKGROUND:

On April 1, 1991, the Department implemented the manufacturers rebate program as mandated by the provisions of Omnibus Budget Reconciliation Act of 1990 (OBRA '90). The Department now requires that, for a drug product to be compensable through the Medical Assistance Program, the drug company that markets that drug product must participate in the rebate program. All drug companies that meet this requirement will have their products accessible through our program.

Initially, the Department issued a list of the names and labeler codes of those drug companies that are participating in the manufacturers rebate program so that providers can indentify the compensability of participating companies' products. The Department is to notify all providers of any changes occurring to this list.

DISCUSSION:

Recently, the federal government notified the Department that it has included additional drug companies' labeler codes to this list. Therefore, the Department is issuing an updated list of participating drug companies. The names and labeler codes of the drug companies that were added to the previous list are designated by an asterisk (*) on the updated list.

* 01-91-09 02-91-05 03-91-07 04-91-07 10-91-06 11-91-08 12-91-05 19-91-07
  26-91-05 28-91-04 29-91-04 30-91-04 33-91-04 49-91-05

COMMENTS AND QUESTIONS REGARDING THIS BULLETIN SHOULD BE DIRECTED TO:

Pharmacy and Ancillary Services
P. O. Box 8043
Harrisburg, Pennsylvania 17105

OR

Call the appropriate toll-free number for your provider type.

Any drug product marketed by these additional drug companies will be compensable through the Medical Assistance Program retroactive to April 1, 1991.

PROCEDURE:

Please discard all other lists of participating drug companies which the Department sent you and replace them with the attached list. Please refer to this updated list before submitting a claim to the Department. Remember, the LABELER CODE is the determining factor in identifiying a participating drug company's compensable products.

If you have had any previous claims rejected for drug products marketed by any drug company on the attached list, including those companies which the Department added, please resubmit them for payment in the usual manner.

Those drug products which were previously noncompensable, as described in section 1121.54 of the pharmaceutical services regulations (DESI Drugs, appetite suppressants, smoking deterrents, etc.), will remain noncompensable regardless of the fact that the company that distributes them is participating in the rebate program.

If you have any question as to whether a particular product is covered through the Medical Assistance Program, you may verify the compensability by using the Drug Verification System (DVS).

<div align="center">VERY IMPORTANT</div>

PLEASE BE CERTAIN TO INDICATE ON THE CLAIM FORM, THE CORRECT AND COMPLETE 11 DIGIT NDC NUMBER CONTAINED ON THE PACKAGE OF THE PRODUCT THAT IS ACTUALLY DISPENSED. UNDER NO CIRCUM- STANCES ARE YOU PERMITTED TO SUBSTITUTE OR INTERCHANGE ONE PRODUCT'S NDC NUMBER FOR ANOTHER PRODUCT'S NDC NUMBER FOR ANY REASON.

NEXT STEP(S):

1. Please refer to the attached lists before prescribing medication or submitting a claim to the Department.

2. Discard all lists sent with recent remittance advices.

CODE	LABELER/NAME	CODE	LABELER/NAME
00049	PFIZER, INC.	*55372	STAFFORD-MILLER
00662	PFIZER, INC.	00076	STAR PHARMACEUTICALS, INC.
00069	PFIZER LABS	00402	STERIS LABORATORIES, INC.
00663	PFIZER LABS.	*00145	STIEFEL LABORATORIES, INC.
00995	PFIZER LABS.	57706	STORZ INSTRUMENT COMPANY
*00121	PHARMACEUTICAL ASSOCIATES, INC.	00038	STUART PHARMACEUTICALS, ICI AMERICAS INC
00832	PHARMACEUTICAL BASICS, INC.	57267	SUMMIT PHARMACEUTICALS
00462	PHARMADERM, DIV. OF ALTANA, INC.	00033	SYNTEX LABORATORIES, INC.
24208	PHARMAFAIR, INC.	18393	SYNTEX LABORATORIES, INC.
*54979	PHARMACISTS CHOICE	42987	SYNTEX LABORATORIES, INC.
*00813	PHARMICS, INC.	*47854	SYOSSET LABORATORIES COMPANY, INC.
*60104	PIONEER PHARMACEUTICAL, INC.	00300	TAP PHARMACEUTICALS, INC.
50991	POLY PHARMACEUTICAL, INC.	51672	TARO PHARMACEUTICALS, INC.
53124	PRAXIS BIOLOGICS, INC.	49158	THAMES PHARMACAL COMPANY, INC.
00228	PUREPAC PHARMACEUTICAL CO.	*57895	THE BIOPRACTIC GROUP II, INC.
*51309	QUAD PHARMACEUTICALS, INC.	00056	THE DUPONT MERCK PHARMACEUTICAL CO.
52446	QUALITEST PRODUCTS, INC.	*00094	THE DUPONT MERCK PHARMACEUTICAL CO.
*00603	QUALITEST PRODUCTS, INC.	*00590	THE DUPONT MERCK PHARMACEUTICAL CO.
12830	R. A. MC NEIL COMPANY	00152	THE GRAY PHARMACEUTICAL COMPANY
58743	R. A. PHARMACEUTICALS	00034	THE PURDUE FREDERICK COMPANY
*00021	REED & CARNRICK	00009	THE UPJOHN COMPANY
00032	REID-ROWELL, INC.	*53020	TRINITY TECHNOLOGIES CORPORATION
00067	RHONE-POULENC RORER PHARMACEUTICALS, INC.	00785	UAD LABORATORIES, INC.
00075	RHONE-POULENC RORER PHARMACEUTICALS, INC.	51079	UDL LABORATORIES, INC.
*00115	RICHLYN LABORATORIES, INC.	00677	UNITED RESEARCH LABORATORIES, INC.
*53807	RLJ PHARMACEUTICAL CORPORATION	00245	UPSHER-SMITH LABORATORIES, INC.
00031	ROBINS, A.H.	-*52747	US PHARMACEUTIC CORPORATION
70074	ROSS LABS.	00615	VANGARD LABS, INC.
00054	ROXANE LABORATORIES, INC.	*54022	VITALINE CORPORATION
51875	ROYCE LABORATORIES, INC.	00185	VITARINE PHARMACEUTICALS, INC.
00536	RUGBY LABORATORIES, INC.	43797	W. E. BAUCK, INC.
50474	ROSS PHARMACEUTICAL, INC.	00047	WARNER-LAMBERT COMPANY
00043	SANDOZ CONSUMER CORPORATION	00071	WARNER-LAMBERT COMPANY
00078	SANDOZ PHARMACEUTICAL CORPORATION	11370	WARNER-LAMBERT COMPANY
58345	SANDOZ PHARMACEUTICAL CORPORATION	*52800	WARNER LAMBERT COMPANY
00281	SAVAGE LABORATORIES, DIV. OF ALTANA	*53592	WARNER-LAMBERT COMPANY
00334	SCHEIN PHARMACEUTICAL, INC.	*00710	WARNER-LAMBERT COMPANY (PARKE-DAVIS)
00085	SCHERING CORPORATION	52544	WATSON LABORATORIES, INC.
00369	SCHERING CORPORATION	00143	WEST-WARD PHARMACEUTICAL CORP.
00905	SCHIAPPARELLI SEARLE	00072	WESTWOOD-SQUIBB PHARMACEUTICALS
00091	SCHWARZ PHARMA KREMERS URBAN COMPANY	00573	WHITEHALL LABORATORIES, INC.
*47028	SENECA PHARMACEUTICAL, INC.	11414	WILLEN DRUG COMPANY
45809	SHIONOGI USA, INC.	51728	WILLIAMS GENERICS, INC.
50111	SIDMAK LABORATORIES, INC.	00024	WINTHROP PHARMACEUTICALS
54482	SIGMA-TAU PHARMACEUTICALS, INC.	00008	WYETH-AYERST
00007	SMITHKLINE BEECHAM CORPORATION	00046	WYETH-AYERST
00029	SMITHKLINE BEECHAM CORPORATION	50962	XACTDOSE, INC.
00108	SMITHKLINE BEECHAM CORPORATION	00172	ZENITH LABORATORIES, INC.
*00484	SMITHKLINE BEECHAM CORPORATION		
00766	SMITHKLINE BEECHAM CORPORATION		
45800	SMITHKLINE BEECHAM CORPORATION		
49692	SMITHKLINE BEECHAM CORPORATION		
53100	SMITHKLINE BEECHAM CORPORATION		
*57294	SMITHKLINE BEECHAM CORPORATION		
39506	SOMERSET PHARMACEUTICALS, INC.		

CODE	LABELER/NAME	CODE	LABELER/NAME
00002	ELI LILLY AND COMPANY	00089	3M PHARMACEUTICALS
00003	E. R. SQUIBB & SONS, INC.	00091	SCHWARZ PHARMA KREMERS URBAN COMPANY
00004	HOFFMANN-LA ROCHE, INC.	00093	LEMMON COMPANY
00005	LEDERLE LAB AMER CYANAMID	*00094	THE DUPONT MERCK PHARMACEUTICAL CO.
00006	MERCK SHARP & DOHME	00108	SMITHKLINE BEECHAM CORPORATION
00007	SMITHKLINE BEECHAM CORPORATION	00113	L. PERRIGO COMPANY
00008	WYETH-AYERST	*00115	RICHLYN LABORATORIES, INC.
00009	THE UPJOHN COMPANY	00118	HOLLISTER-STIER MILES, INC. PHARM. DIV.
00013	ADRIA LABORATORIES	*00121	PHARMACEUTICAL ASSOCIATES, INC.
00014	G. D. SEARLE & CO.	*00126	COLGATE HOYT LABORATORIES
00015	MEAD JOHNSON & COMPANY	00131	CENTRAL PHARMACEUTICALS, INC.
00016	KABI PHARMACIA	00143	WEST-WARD PHARMACEUTICAL CORP.
*00021	REED & CARNICK	*00145	STIEFEL LABORATORIES, INC.
00023	ALLERGAN, INC.	00147	CAMALL CO.
00024	WINTHROP PHARMACEUTICALS	00149	NORWICH EATON PHARMACEUTICALS, INC.
00025	G. D. SEARLE & CO.	00152	THE GRAY PHARMACEUTICAL COMPANY
00026	MILES INC., PHARMACEUTICAL DIVISION	00161	CUTTER BIOLOGICAL MILES INC. PHARM. DIV.
00028	GEIGY PHARMACEUTICALS	00168	E. FOUGERA & CO., DIV OF ALTANA, INC.
00029	SMITHKLINE BEECHAM CORPORATION	00172	ZENITH LABORATORIES, INC.
00031	ROBINS, A.H.	00173	GLAXO, INC.
00032	REID-ROWELL, INC.	00182	GOLDLINE LABORATORIES, INC.
00033	SYNTEX LABORATORIES, INC.	00185	VITARINE PHARMACEUTICALS, INC.
00034	THE PURDUE FREDERICK COMPANY	*00186	ASTRA PHARMACEUTICAL PRODUCTS, INC.
00038	STUART PHARMACEUTICALS, ICI AMERICAS INC.	*00187	ICN PHARMACEUTICALS, INC.
00039	HOECHST-ROUSSEL PHARMACEUTICALS, INC.	*00193	AMES
00043	SANDOZ CONSUMER CORPORATION	00205	LEDERLE PARENTERALS, INC.
00044	KNOLL PHARMACEUTICALS	00206	LEDERLE PIPERACILLIN, INC.
00045	MC NEIL PHARMACEUTICAL	00225	B. F. ASCHER & COMPANY, INC.
00046	WYETH-AYERST	00228	POREPAC PHARMACEUTICAL CO.
00047	WARNER-LAMBERT COMPANY	00245	UPSHER-SMITH LABORATORIES, INC.
00048	BOOTS PHARMACEUTICALS, INC.	00249	GERIATRIC PHARMACEUTICAL CORP.
00049	PFIZER, INC.	00258	INWOOD LABORATORIES, INC.
00052	ORGANON, INC.	00259	MAYRAND PHARMACEUTICALS, INC.
00053	ARMOUR PHARM. CO.	00264	MC GAW, INC.
00054	ROXANE LABORATORIES, INC.	*00268	CENTER LABORATORIES
00056	THE DUPONT MERCK PHARMACEUTICAL CO.	00277	LASER, INC.
00058	IOLAB CORPORATION	00281	SAVAGE LABORATORIES, DIV. OF ALTANA
00062	ORTHO PHARMACEUTICAL CORPORATION	00299	OWEN/GALDERMA LAB
00065	ALCON LAB., INC.	00300	TAP PHARMACEUTICAL, INC.
00066	DERMIK LABORATORIES	00302	GENETCO, INC.
00067	RHONE-POULENC RORER PHARMACEUTICALS, INC.	00303	BAUSCH & LOMB PHARM., INC.
00068	MARION MERRELL DOW, INC.	00304	J. J. BALAN
00069	PFIZER LABS	00310	ICI PHARMA ICI AMERICAS, INC.
00071	WARNER-LAMBERT COMPANY	00314	BYREX PHARMACEUTICALS
00072	WESTWOOD-SQUIBB PHARMACEUTICALS	*00327	GUARDIAN LABS DIV UNITED-GUARDIAN, INC.
00074	ABBOTT LABS.	00332	BIOCRAFT LABORATORIES, INC.
00075	RHONE-POULENC RORER PHARMACEUTICALS, INC.	*00338	BAXTER HEALTHCARE CORPORATION
00076	STAR PHARMACEUTICALS, INC.	00349	PARMED PHARMACEUTICALS INC.
00078	SANDOZ PHARMACEUTICAL CORPORATION	00364	SCHEIN PHARMACEUTICAL, INC.
00081	BURROUGHS WELLCOME CO.	00369	SCHERING CORPORATION
00083	CIBA PHARMACEUTICAL COMPANY	00378	MYLAN PHARMACEUTICALS, INC.
00085	SCHERING CORPORATION	*00386	GEBAUER CO.
00086	CARNRICK LABORATORIES, INC.	00392	CRANDALL ASSOCIATE, INC.
00087	BRISTOL-MYERS SQUIBB COMPANY	*00396	MILEX PRODUCTS, INC.
00088	MARION MERRELL DOW, INC.	*00398	C & M PHARMACAL, INC.

CODE	LABELER/NAME	CODE	LABELER/NAME
00402	STERIS LABORATORIES, INC.	00905	SCHIAPPARELLI SEARLE
00405	ALIGEN INDEPENDENT LABS., INC.	*00944	BAXTER HYLAND DIVISION
00451	MURO PHARMACEUTICAL INC.	00995	PFIZER LABS.
00456	FOREST PHARMACEUTICALS, INC.	00998	ALCON (PUERTO RICO), INC.
00462	PHARMADERM, DIV. OF ALTANA, INC.	08189	CAN-AM CARE CORP.
*00463	C. O. TRUXTON, INC.	08237	CALGON VESTAL LABORATORIES
00469	LYPHOMED, DIVISION FUJISAWA USA	*10267	CONTRACT PHARMACAL CORP.
00472	BARRE-NATIONAL, INC.	10770	F. A. MITCHELL CO., INC.
00482	KENWOOD LABORATORIES DIV BRADLEY PHARM	*10892	LUNSCO, INC.
*00484	SMITHKLINE BEECHAM CORPORATION	11370	WARNER-LAMBERT COMPANY
*00485	EDWARDS PHARMACEUTICALS, INC.	11414	WILLEN DRUG COMPANY
*00486	BEACH PRODUCTS, INC.	11793	CONNAUGHT LABORATORIES, LTD.
*00496	FERNDALE LABORATORIES, INC.	11808	ION LABORATORIES, INC.
00514	DOW B. HICKAM, INC.	11845	MASON DISTRIBUTORS, INC.
00524	BOOTS LABORATORIES	11980	ALLERGAN, INC.
*00525	PAN AMERICAN LABORATORIES, INC.	12333	LONGS DRUG STORES, CALIF., INC.
*00527	LANNETT COMPANY, INC.	12462	CHESTER LABS, INC.
00536	RUGBY LABORATORIES, INC.	12830	R. A. MC NEIL COMPANY
*00548	INTERNATIONAL MEDICATION SYSTEMS, LTD.	12939	MARLOP PHARMACEUTICAL
00555	BARR LABORATORIES, INC.	14362	MASS PUBLIC HEALTH BIO LAB
*00556	H R CENCI LABORATORIES	*17236	DIXON-SHANE, INC.
00563	BOCK PHARMACAL COMPANY	17314	ALZA CORPORATION
00573	WHITEHALL LABORATORIES, INC.	17478	AKORN, INC.
*00574	PADDOCK LABORATORIES, INC.	18393	SYNTEX LABORATORIES, INC.
00585	FISONS CORPORATION	19810	BRISTOL-MYERS SQUIBB COMPANY
*00590	THE DUPONT MERCK PHARMACEUTICAL CO.	*21292	BOME DIAGNOSTICS
00591	DANBURY PHARMACAL, INC.	23317	NMC LABORATORIES, INC.
00597	BOEHRINGER INGELHEIM PHARMACEUTICALS	24208	PHARMAFAIR, INC.
*00603	QUALITEST PRODUCTS, INC.	*25382	DERMA SCIENCES, INC.
00615	VANGARD LABS, INC.	*28105	HILL DERMACEUTICAL, INC.
00641	ELKINS-SINN, INC.	37937	MC KESSON CORP. - MEDALIST
00642	EVERETT LABORATORIES INC.	38130	ECONO MED PHARMACEUTICALS, INC.
00662	PFIZER, INC.	38245	COPLEY PHARMACEUTICAL, INC.
00663	PFIZER LABS.	39506	SOMERSET PHARMACEUTICALS, INC.
00665	INTERNATIONAL LABORATORIES	42987	SYNTEX LABORATORIES, INC.
00677	UNITED RESEARCH LABORATORIES, INC.	43567	MD PHARMACEUTICAL INC.
00682	MARNEL PHARMACEUTICALS, INC.	43797	W. E. BAUCK, INC.
00689	DANIELS PHARMACEUTICALS, INC.	44184	BAJAMAR CHEMICAL COMPANY, INC.
00702	CETUS CORPORATION	44437	BOLAN PHARMACEUTICAL, INC.
*00710	WARNER-LAMBERT COMPANY (PARKE-DAVIS)	*45565	MED-DERM PHARMACEUTICALS
00713	G & W LABORATORIES, INC.	45800	SMITHKLINE BEECHAM CORPORATION
00719	BIOLINE LABORATORIES, INC.	45802	CLAY-PARK LABS, INC.
00766	SMITHKLINE BEECHAM CORPORATION	45809	SHIONOGI USA, INC.
00777	DISTA PRODUCTS CO, DIV OF ELI LILLY & CO.	*46672	MIKART, INC.
00781	GENEVA PHARMACEUTICALS, INC.	*47028	SENECA PHARMACEUTICAL, INC.
00785	UAD LABORATORIES, INC.	*47679	BAXTER HEALTHCARE CORPORATION
*00813	PHARMICS, INC.	*47854	SYOSSET LABORATORIES COMPANY, INC.
*00820	LOGEN PHARMACEUTICAL, INC.	48532	DELMONT LABORATORIES, INC.
*00822	BOOTS LABORATORIES, INC.	49137	BART PHARMACAL
00832	PHARMACEUTICAL BASICS, INC.	49158	THAMES PHARMACAL COMPANY, INC.
00839	MOORE MEDICAL CORP.	49281	CONNAUGHT LABORATORIES, INC.
*00853	MAYS PHARMACEUTICAL, INC.	49348	MC KESSON CORP - VALU-RITE
00879	HALSEY DRUG COMPANY INC.	49502	DEY LABORATORIES, INC.
00884	PEDINOL PHARMACAL, INC.	*49669	ALPHA THERAPEUTIC CORPORATION
00904	MAJOR PHARMACEUTICAL CO.	49692	SMITHKLINE BEECHAM CORPORATION

CODE	LABELER/NAME	CODE	LABELER/NAME
00089	3M PHARMACEUTICALS	55559	CALGON VESTAL LABORATORIES
*53265	ABLE LABORATORIES, INC.	58237	CALGON VESTAL LABORATORIES
00074	ABBOTT LABS.	00147	CAMALL CO.
53014	ADAMS LABORATORIES, INC.	08189	CAN-AM CARE CORP.
00013	ADRIA LABORATORIES	57664	CARACO PHARMACEUTICAL LABORATORIES, LTD.
17478	AKORN, INC.	00086	CARNRICK LABORATORIES, INC.
00065	ALCON LAB., INC.	55726	CARPENTER PHARMACEUTICAL CO., INC.
00998	ALCON (PUERTO RICO), INC.	*53303	CARRINGTON LABORATORIES, INC.
00405	ALIGEN INDEPENDENT LABS., INC.	*53393	CENCI POWDER PRODUCTS, INC.
00023	ALLERGAN, INC.	*00268	CENTER LABORATORIES
11980	ALLERGAN, INC.	00131	CENTRAL PHARMACEUTICALS, INC.
*49669	ALPHA THERAPEUTIC CORPORATION	53905	CETUS CORPORATION
51641	ALRA LABORATORIES, INC.	00702	CETUS CORPORATION
17314	ALZA CORPORATION	54429	CHASE LABORATORIES, INC.
53445	AMERICAN PREFERRED PHARMACEUTICAL, INC.	12462	CHESTER LABS, INC.
*52769	AMERICAN RED CROSS	00083	CIBA PHARMACEUTICAL COMPANY
*00193	AMES	45802	CLAY-PARK LABS, INC.
55513	AMGEN, INC.	*00126	COLGATE HOYT LABORATORIES
*52152	AMIDE PHARMACEUTICAL, INC.	*55056	COLUMBIA LABORATORIES, INC.
00053	ARMOUR PHARM. CO.	49281	CONNAUGHT LABORATORIES, INC.
*00186	ASTRA PHARMACEUTICAL PRODUCTS, INC.	11793	CONNAUGHT LABORATORIES, LTD.
55829	ATRO PHARMACEUTICAL, INC.	*10267	CONTRACT PHARMACAL CORP.
00225	B. F. ASCHER & COMPANY, INC.	38245	COPLEY PHARMACEUTICAL, INC.
44184	BAJAMAR CHEMICAL COMPANY, INC.	58729	CORAL PHARMACEUTICAL, INC.
00555	BARR LABORATORIES, INC.	00392	CRANDALL ASSOCIATE, INC.
00472	BARRE-NATIONAL, INC.	55326	CURATEK PHARMACEUTICAL
49137	BART PHARMACAL	00161	CUTTER BIOLOGICAL MILES INC. PHARM. DIV.
00303	BADSCH & LOMB PHARM., INC.	00591	DANBURY PHARMACAL, INC.
*00338	BAXTER HEALTHCARE CORPORATION	00689	DANIELS PHARMACEUTICALS, INC.
*47679	BAXTER HEALTHCARE CORPORATION	48532	DELMONT LABORATORIES, INC.
*00944	BAXTER HYLAND DIVISION	53706	DELTA PHARMACEUTICALS
*00486	BEACH PRODUCTS, INC.	*25382	DERMA SCIENCES, INC.
50419	BERLEX LABORATORIES, INC.	00066	DERMIK LABORATORIES
54274	BEST GENERICS, INC.	49502	DEY LABORATORIES, INC.
*53062	BETA DERMACEUTICALS, INC.	00777	DISTA PRODUCTS CO, DIV OF ELI LILLY & CO
00332	BIOCRAFT LABORATORIES, INC.	*17236	DIXON-SHANE, INC.
00719	BIOLINE LABORATORIES, INC.	00514	DOW B. HICKAM, INC.
50486	BLAIREX LABORATORIES, INC.	*51479	DURA PHARMACEUTICALS, INC.
51674	BLANSETT PHARM.	*51285	DURAMED PHARMACEUTICALS, INC.
00563	BOCK PHARMACAL COMPANY	00168	E. FOUGERA & CO. DIV OF ALTANA INC.
00597	BOEHRINGER INGELHEIM PHARMACEUTICALS	00003	E. R. SQUIBB & SONS, INC.
*50924	BOEHRINGER MANHEIM DIAGNOSTICS/BIO-	55053	ECONOLAB
	DYNAMICS	38130	ECONO MED PHARMACEUTICALS, INC.
44437	BOLAN PHARMACEUTICAL, INC.	*00485	EDWARDS PHARMACEUTICALS, INC.
00048	BOOTS PHARMACEUTICALS, INC.	55806	EFFCON LABORATORIES, INC.
00524	BOOTS LABORATORIES, INC.	00002	ELI LILLY AND COMPANY
*00822	BOOTS LABORATORIES, INC.	00641	ELKINS-SINN, INC.
52268	BRAINTREE LABORATORIES, INC.	*57779	EQUIPHARM CORP.
51991	BRECKENRIDGE, INC.	55629	ESQUIRE PHARMACEUTICALS
00087	BRISTOL-MYERS SQUIBB COMPANY	58177	ETHEX CORPORATION
57783	BRISTOL-MYERS SQUIBB COMPANY	00642	EVERETT LABORATORIES, INC.
19810	BRISTOL-MYERS SQUIBB COMPANY	10770	F. A. MITCHELL CO., INC.
00081	BURROUGHS WELLCOME CO.	52735	FAMILY PHARMACY
*00398	C & M PHARMACAL, INC.	*00496	FERNDALE LABORATORIES, INC.
*00463	C. O. TRUXTON, INC.	00585	FISONS CORPORATION

CODE	LABELER/NAME	CODE	LABELER/NAME
00456	FOREST PHARMACEUTICALS, INC.	54198	LIQUIPHARM, INC.
57317	FUJISAWA PHARMACEUTICAL, CO.	*00820	LOGEN PHARMACEUTICAL, INC.
00713	G & W LABORATORIES, INC.	12333	LONGS DRUG STORES, CALIF., INC.
00014	G. D. SEARLE & CO.	50732	LUCHEM PHARMACEUTICALS, INC.
00025	G. D. SEARLE & CO.	*10892	LUNSCO, INC.
57844	GATE PHARMACEUTICALS	00469	LYPHOMED, DIVISION FUJISAWA USA
00386	GEBAUER CO.	54523	LYPHOMED / NOVOPHARM PHARMACEUTICAL CO.
00028	GEIGY PHARMACEUTICALS	00904	MAJOR PHARMACEUTICAL CO.
52761	GENDERM	54391	MAKOFF R&D LABORATORIES, INC.
50242	GENENTECH, INC.	00068	MARION MERRELL DOW, INC.
52569	GENERAMED, INC.	00088	MARION MERRELL DOW, INC.
00302	GENETCO, INC.	12939	MARLOP PHARMACEUTICAL
00781	GENEVA PHARMACEUTICALS, INC.	00682	MARNEL PHARMACEUTICALS, INC.
58468	GENZYME CORPORATION	52555	MARTEC PHARMACEUTICAL, INC.
00249	GERIATRIC PHARMACEUTICAL CORP.	11845	MASON DISTRIBUTORS, INC.
00173	GLAXO, INC.	14362	MASS PUBLIC HEALTH BIO LAB
00182	GOLDLINE LABORATORIES, INC.	00259	MAYRAND PHARMACEUTICALS, INC.
57801	GRUPAK PHARMACEUTICALS	*00853	MAYS LABORATORIES, INC.
00327	GUARDIAN LABS DIV UNITED-GUARDIAN, INC.	00264	MC GAW INC.
00556	H R CENCI LABORATORIES	49348	MC KESSON CORP - VALU-RITE
00879	HALSEY DRUG COMPANY, INC.	37937	MC KESSON CORP. - MEDALIST
51432	HARBER PHARMACEUTICALS, INC.	00045	MC NEIL PHARMACEUTICAL
50383	HI-TECH PHARMACAL CO., INC.	43567	MD PHARMACEUTICAL INC.
28105	HILL DERMACEUTICAL, INC.	00015	MEAD JOHNSON & COMPANY
00039	HOECHST-ROUSSEL PHARMACEUTICALS, INC.	*45565	MED-DERM PHARMACEUTICALS
00004	HOFFMANN-LA ROCHE, INC.	*53404	MEDICOPHARMA, INC.
00118	HOLLISTER-STIER MILES, INC. PHARM. DIV.	57480	MEDIREX, INC.
21292	HOME DIAGNOSTICS	00006	MERCK SHARP & DOHME
56151	HOME DIAGNOSTICS	58063	MGI PHARMA, INC.
54580	HORIZON PRODUCTS COMPANY	*46672	MIKART, INC.
58407	HUCKABY PHARMACAL, INC.	00026	MILES INC., PHARMACEUTICAL DIVISION
00314	HYREX PHARMACEUTICALS	*00396	MILEX PRODUCTS, INC.
00310	ICI PHARMA ICI AMERICAS, INC.	00839	MOORE MEDICAL CORP.
00187	ICN PHARMACEUTICALS, INC.	00451	MURO PHARMACEUTICAL, INC.
58154	INFINITY PHARMACEUTICALS, INC.	53489	MUTUAL PHARMACEUTICAL COMPANY, INC.
00548	INTERNATIONAL MEDICATION SYSTEMD, LTD.	00378	MYLAN PHARMACEUTICALS, INC.
00665	INTERNATIONAL LABORATORIES	54629	NATIONAL VITAMIN COMPANY, INC.
00258	INWOOD LABORATORIES, INC.	58041	NEW LIFE HEALTH PRODUCTS CORP.
00058	IOLAB CORPORATION	23317	NMC LABORATORIES, INC.
11808	ION LABORATORIES, INC.	00149	NORWICH EATON PHARMACEUTICALS, INC.
00304	J. J. BALAN	*50445	NOVO NORDISK PHARMACEUTICALS, INC.
49938	JACOBUS PHARMACEUTICAL CO., INC.	55953	NOVOPHARM, INC.
50458	JANSSEN PHARMACEUTICALS, INC.	*55515	OCLASSEN PHARMACEUTICALS, INC.
00016	KABI PHARMACIA	*54799	OCUSOFT, INC.
00482	KENWOOD LABORATORIES DIV BRADLEY PHARM	51660	OEM LABORATORIES, INC.
00044	KNOLL PHARMACEUTICALS	00052	ORGANON, INC.
00113	L. PERRIGO COMPANY	00062	ORTHO PHARMACEUTICAL CORPORATION
00527	LANNETT COMPANY, INC.	00299	OWEN/GALDERMA LAB
00277	LASER, INC.	*00574	PADDOCK LABORATORIES, INC.
00005	LEDERLE LAB AMER CYANAMID	53159	PALISADES PHARMACEUTICALS, INC.
00205	LEDERLE PARENTERALS, INC.	*00525	PAN AMERICAN LABORATORIES, INC.
00206	LEDERLE PIPERACILLIN, INC.	49884	PAR PHARMACEUTICAL, INC.
00093	LEMMON COMPANY	00349	PARMED PHARMACEUTICALS, INC.
58406	LEUKINE	50361	PASTEUR MERIEUX S AND V
53885	LIFESCAN	00884	PEDINOL PHARMACAL, INC.

CODE	LABELER/NAME	CODE	LABELER/NAME
49884	PAR PHARMACEUTICAL, INC.	53905	CETUS CORPORATION
49938	JACOBUS PHARMACEUTICAL CO., INC.	*54022	VITALINE CORPORATION
50111	SIDMAK LABORATORIES, INC.	54198	LIQUIPHARM, INC.
50242	GENENTECH, INC.	54274	BEST GENERICS, INC.
50361	PASTEUR MERIEUX S AND V	54391	MAKOFF R&D LABORATORIES, INC.
50383	HI-TECH PHARMACAL CO., INC.	54429	CHASE LABORATORIES, INC.
50419	BERLEX LBORATORIES, INC.	54482	SIGMA-TAU PHARMACEUTICALS, INC.
*50445	NOVO NORDISK PHARMACEUTICALS, INC.	54523	LYPHOMED / NOVOPHARM PHARMACEUTICAL CO.
50458	JANSSEN PHARMACEUTICALS, INC.	54580	HORIZON PRODUCTS COMPANY
50474	RUSS PHARMACEUTICAL, INC.	54629	NATIONAL VITAMIN COMPANY, INC.
50486	BLAIREX LABORATORIES, INC.	*54799	OCUSOFT, INC.
50732	LUCHEM PHARMACEUTICALS, INC.	*54979	PHARMACISTS CHOICE
*50924	BOEHRINGER MANHEIM DIAGNOSTICS/BIO-DYNAMICS	55053	ECONOLAB
		*55056	COLUMBIA LABORATORIES, INC.
50962	XACTIDOSE, INC.	55326	CURATEK PHARMACEUTICAL
50991	POLY PHARMACEUTICAL, INC.	*55372	STAFFORD-MILLER
51079	UDL LABORATORIES, INC.	55513	AMGEN, INC.
*51285	DURAMED PHARMACEUTICALS, INC.	*55515	OCLASSEN PHARMACEUTICALS, INC.
*51309	QUAD PHARMACEUTICALS, INC.	55559	CALGON VESTAL LABORATORIES
51432	HARBER PHARMACEUTICALS, INC.	55629	ESQUIRE PHARMACEUTICALS
*51479	DURA PHARMACEUTICALS, INC.	55726	CARPENTER PHARMACEUTICAL CO., INC.
51641	ALRA LABORATORIES, INC.	55806	EFFCON LABORATORIES, INC.
51660	OEM LABORATORIES, INC.	55829	AURO PHARMACEUTICAL, INC.
51672	TARO PHARMACEUTICALS, INC.	55953	NOVOPHARM, INC.
51674	BLANSETT PHARM.	*56151	HOME DIAGNOSTICS
51728	WILLIAMS GENERICS, INC.	57267	SUMMIT PHARMACEUTICALS
51875	ROYCE LABORATORIES, INC.	*57294	SMITHKLINE BEECHAM CORPORATION
51991	BRECKENRIDGE, INC.	57317	FUJISAWA PHARMACEUTICAL, INC.
*52152	AMIDE PHARMACEUTICAL, INC.	57480	MEDIREX, INC.
52268	BRAINTREE LABORATORIES, INC.	57664	CARACO PHARMACEUTICAL LABORATORIES LTD.
52446	QUALITEST PRODUCTS, INC.	57706	STORZ INSTRUMENT COMPANY
52544	WATSON LABORATORIES, INC.	57783	BRISTOL-MYERS SQUIBB COMPANY
52555	MARTEC PHARMACEUTICAL, INC.	*57779	EQUIPHARM CORP.
52569	GENERAMED, INC.	57801	GRUPAK LABORATORIES, INC.
52735	FAMILY PHARMACY	57844	GATE PHARMACEUTICALS
*72747	US PHARMACEUTIC CORPORATION	*57895	THE BIOPRACTIC GROUP II, INC.
*52761	GENDERM	58041	NEW LIFE HEALTH PRODUCTS CORP.
*52769	AMERICAN RED CROSS	58063	MGI PHARMA, INC.
*52800	WARNER LAMBERT	58154	INFINITY PHARMACEUTICALS, INC.
53014	ADAMS LABORATORIES, INC.	58177	ETHEX CORPORATION
*53020	TRINITY TECHNOLOGIES CORPORATION	58345	SANDOZ PHARMACEUTICAL CORPORATION
*53062	BETA DERMACEUTICALS, INC.	58406	LEUKINE
53100	SMITHKLINE BEECHAM CORPORATION	58407	HUCKABY PHARMACAL, INC.
53124	PRAXIS BIOLOGICS, INC.	58468	GENZYME CORPORATION
53159	PALISADES PHARMACEUTICALS, INC.	58729	CORAL PHARMACEUTICAL INC.
*53265	ABLE LABORATORIES, INC.	58743	R. A. PHARMACEUTICALS
*53303	CARRINGTON LABORATORIES, INC.	*60104	PIONEER PHARMACEUTICALS, INC.
*53393	CENCI POWDER PRODUCTS, INC.	70074	ROSS LABS.
*53404	MEDICOPHARMA, INC.		
53445	AMERICAN PREFERRED PHARMACEUTICAL, INC.		
53489	MUTUAL PHARMACEUTICAL COMPANY, INC.		
*53592	WARNER-LAMBERT COMPANY		
53706	DELTA PHARMACEUTICALS		
*53807	RLJ PHARMACEUTICAL CORPORATION		
*53885	LIFESCAN		

Appendix Table 10

State Summary of Decomposition of Rates of Change in

Drug Expenditures by Therapeutic Category, 1990-1992

ARKANSAS

STATE SUMMARY OF DECOMPOSITION OF RATES OF CHANGE IN DRUG EXPENDITURES
BY THERAPEUTIC CATEGORY
1990 - 1992

Therapeutic Category Eligibility Group/Example	Total Drug Expenditures	Expenditures Net of Rebate	Prices	Use Rate (Users as % of Enrolled)	Intensity (Rxs per User)	Medicaid Enrollment
Anti-histamines						
State Total	13.9422	7.6776	25.1293	-13.5487	-2.9982	18.1587
Aged	3.4022	-2.3900	26.9541	-16.6897	2.3310	5.4931
Blind/Disabled	6.7515	0.8414	23.8756	-19.5051	-8.3348	25.9916
AFDC/Poverty Related - Adults	-7.8734	-14.7289	26.1749	-29.7363	8.1563	20.4366
AFDC/Poverty Related - Children	54.5351	47.0663	22.2072	7.9402	-3.4565	28.1819
DRUG A	19861.111	15935.204	20.7080	3226.6766	101.6932	20.7211
DRUG B	3981.6667	2045.9613	33.7815	769.7735	138.0952	20.7211
Penicillins, oral						
State Total	19.9038	11.4570	2.0306	-9.0043	-1.7936	24.2814
Aged	-18.3357	-22.9394	-0.3396	-22.6219	-4.5810	5.4931
Blind/Disabled	15.6665	7.7035	2.2739	-8.3389	-6.6084	25.9916
AFDC/Poverty Related - Adults	-8.3915	-11.4171	-1.8495	-23.0279	-3.3420	20.4366
AFDC/Poverty Related - Children	33.8960	23.5768	3.1332	-3.4102	-0.0732	28.1819
Other	-100.0000	-100.0000	2.6497	-100.0000	-100.0000	-100.0000
DRUG C	-1.9033	-3.5981	-10.1327	-17.9399	-1.5779	20.7211
Cephelosporins, oral						
State Total	-11.6516	-26.1682	9.2540	-27.3800	-5.1708	21.1641
Aged	-34.9224	-43.7840	3.1011	-33.9911	-5.5755	5.4931
Blind/Disabled	-17.1440	-30.6319	7.5517	-32.2997	-6.9603	25.9916
AFDC/Poverty Related - Adults	-20.1924	-30.5114	2.4063	-31.2463	-0.3025	20.4366
AFDC/Poverty Related - Children	6.6975	-12.6201	15.3114	-20.3239	-4.6971	28.1819
DRUG D	-39.6947	-52.3592	22.9005	-54.3694	-7.3403	20.7211
DRUG E	300975.00	236241.54	28.1910	83162.725	0.7803	20.7211
DRUG F	-31.7404	-33.3969	-17.4499	-19.2057	-5.4391	20.7211
Quinolones, oral						
State Total	-71.5660	-78.2171	8.8177	-74.5781	-9.1267	11.9494
Aged	-69.9015	-76.7423	8.9213	-71.0908	-9.0903	5.4931
Blind/Disabled	-74.0888	-80.6319	8.5762	-79.6995	-12.3780	25.9916
AFDC/Poverty Related - Adults	-76.8757	-82.6762	8.6436	-83.5027	1.1735	20.4366
AFDC/Poverty Related - Children	-76.4053	-82.3430	8.9188	-83.3394	-8.1061	28.1819
DRUG G	-50.8031	-57.2292	10.8701	-57.9286	-8.2247	20.7211
DRUG H	548.1108	371.0274	22.2077	450.2649	9.1398	20.7211
Anti-infectives, other oral						
State Total	18.1615	5.3179	7.2214	-5.0593	-3.2423	19.5094
Aged	-1.6884	-16.9411	10.1284	-14.1361	-1.2835	5.4931
Blind/Disabled	1.3265	-10.5641	5.9040	-12.8909	-7.6291	25.9916
AFDC/Poverty Related - Adults	14.1116	2.7481	2.7781	-12.1414	-3.5681	20.4366

ARKANSAS

STATE SUMMARY OF DECOMPOSITION OF RATES OF CHANGE IN DRUG EXPENDITURES
BY THERAPEUTIC CATEGORY
1990 - 1992

Therapeutic Category Eligibility Group/Example	Total Drug Expenditures	Expenditures Net of Rebate	Prices	Use Rate (Users as % of Enrolled)	Intensity (Rxs per User)	Medicaid Enrollment
Analgesics, Narcotic						
State Total	-0.6524	-7.7598	5.0570	-22.7451	-5.3519	19.7327
Aged	-4.1168	-12.0130	2.9663	-22.4616	1.8655	5.4931
Blind/Disabled	-.4796	-11.8029	7.2427	-25.9732	-12.4836	25.9916
AFDC/Poverty Related - Adults	-3.2407	-9.1681	0.0203	-26.6937	-2.9525	20.4366
AFDC/Poverty Related - Children	37.0178	31.1537	13.9331	-6.0877	-0.5453	28.1819
Other	-100.0000	-100.0000	-7.5896	-100.0000	-100.0000	-100.0000
DRUG I	-39.3485	-58.3734	81.6393	-43.9906	-32.7746	20.7211
DRUG J	-91.7827	-92.0739	8.8389	-90.4636	-17.1095	20.7211
DRUG K	-14.4144	-15.4386	-4.2575	-27.5960	-5.9396	20.7211
DRUG L	908.9744	883.7881	-5.4795	865.7242	1.4170	20.7211
Analgesics, Other						
State Total	-8.2877	-12.4252	-8.3647	-14.8523	-5.3720	14.6517
Aged	-16.7710	-19.9679	-7.3243	-20.5724	-2.5613	5.4931
Blind/Disabled	0.4869	-4.8142	-12.0496	-7.2111	-7.6779	25.9916
AFDC/Poverty Related - Adults	5.8574	0.1762	-14.4861	-14.4814	-7.8148	20.4366
AFDC/Poverty Related - Children	16.6977	10.6292	6.7981	-16.7258	-1.3198	28.1819
Other	-100.0000	-100.0000	0.9773	-100.0000	-100.0000	-100.0000
DRUG M	14.3575	10.7893	2.3381	-37.3646	-7.5575	20.7211
DRUG N	-12.2646	-13.9988	-27.6694	-11.9998	-7.8972	20.7211
DRUG O	-0.4355	-3.2698	9.6136	-26.6886	2.3691	20.7211
Anti-arthritics						
State Total	-3.5281	-8.1146	-15.4950	-20.4250	-2.1854	14.4149
Aged	-5.3282	-9.7129	-16.1785	-19.5432	1.1553	5.4931
Blind/Disabled	-3.4546	-8.6999	-13.9254	-27.9298	-7.3273	25.9916
AFDC/Poverty Related - Adults	4.2136	0.4297	-15.8679	-18.5091	-3.8187	20.4366
AFDC/Poverty Related - Children	29.3413	25.2171	-15.9142	0.7304	-3.7658	28.1819
Other	-100.0000	-100.0000	-11.2129	-100.0000	-100.0000	-100.0000
DRUG P	38.7109	-0.6132	17.1697	31.1563	-28.3401	20.7211
DRUG Q	-28.9735	-30.2773	-11.2129	-26.2809	-9.4892	20.7211
DRUG R	-27.8020	-42.5492	10.2041	-27.5189	-20.4969	20.7211
Anti-asthmatics						
State Total	40.0148	-0.6025	16.8413	6.3253	-5.3395	17.7014
Aged	25.3851	-8.0072	14.8679	0.0244	-1.1306	5.4931
Blind/Disabled	42.6511	0.0942	17.4845	2.3376	-8.4512	25.9916
AFDC/Poverty Related - Adults	20.9929	-20.5614	18.8845	-10.5607	-6.7600	20.4366
AFDC/Poverty Related - Children	86.1185	28.0915	20.6615	38.1470	-8.7618	28.1819
DRUG S	-10.5199	-14.0462	3.9878	-22.0083	-8.9541	20.7211
DRUG T	197.6344	128.4452	26.2199	132.4522	-15.1685	20.7211

ARKANSAS

STATE SUMMARY OF DECOMPOSITION OF RATES OF CHANGE IN DRUG EXPENDITURES
BY THERAPEUTIC CATEGORY
1990 - 1992

Therapeutic Category Eligibility Group/Example	Total Drug Expenditures	Expenditures Net of Rebate	Prices	Use Rate (Users as % of Enrolled)	Intensity (Rxs per User)	Medicaid Enrollment
Anti-infectives, other oral						
AFDC/Poverty Related - Children	60.1563	48.5825	7.1672	15.8523	-0.8726	28.1819
Other	-100.0000	-100.0000	-20.1768	-100.0000	-100.0000	-100.0000
DRUG U	-28.0008	-35.5627	0.0000	16.5151	-20.1235	20.7211
DRUG V	13.5548	-10.0282	23.6094	-12.4969	-5.0602	20.7211
DRUG W	-49.9178	-58.1926	18.4062	-62.0521	-3.5383	20.7211
Anti-infectives, other non-oral						
State Total	12.6556	-15.8251	7.6118	-9.1651	-3.0595	18.4723
Aged	20.0424	2.1434	6.4479	28.2314	-0.4503	5.4931
Blind/Disabled	30.8760	-2.9580	6.3825	-18.4212	-5.1575	25.9916
AFDC/Poverty Related - Adults	-7.2879	-40.2475	9.1606	-34.2417	-5.4856	20.4366
AFDC/Poverty Related - Children	13.0554	-21.9337	8.6952	-22.9175	-2.7139	28.1819
DRUG X	81.2708	6.8264	14.3672	32.7161	-2.1688	20.7211
Anti-fungals						
State Total	61.9423	35.2533	15.9374	29.4933	-1.7929	20.8456
Aged	68.9620	31.7793	17.6993	62.8332	7.1648	5.4931
Blind/Disabled	74.5868	44.8890	19.1849	18.5569	-9.1689	25.9916
AFDC/Poverty Related - Adults	-27.3616	-45.4899	20.3667	-34.6399	-4.6381	20.4366
AFDC/Poverty Related - Children	74.6553	56.9554	8.6579	32.7077	-2.2242	28.1819
Other	-100.0000	-100.0000	14.0845	-100.0000	-100.0000	-100.0000
DRUG Y	870.2383	773.6632	0.0000	708.9451	9.4212	20.7211
DRUG Z	-17.7189	-47.5128	29.0389	-19.1479	-7.8573	20.7211
Anti-neoplastics						
State Total	24.5668	2.9984	14.3957	2.7257	0.5326	19.3064
Aged	74.5913	47.4316	15.5335	39.7414	-0.9801	5.4931
Blind/Disabled	-0.5548	-18.8312	13.7883	-13.0985	-0.9801	25.9916
AFDC/Poverty Related - Adults	5.8078	-15.0282	18.4903	-57.1874	-29.0829	20.4366
AFDC/Poverty Related - Children	61.0355	21.2534	10.8660	13.8078	1.4224	28.1819
DRUG AA	-7.7670	-52.9303	24.1276	-49.3550	29.2911	20.7211
DRUG BB	40.0749	-47.3431	8.7955	-34.0481	-0.8979	20.7211
DRUG CC	73.5476	33.1715	28.2905	19.1776	-3.8213	20.7211
DRUG DD	68.0355	49.4472	12.3590	4.7691	23.7262	20.7211
Anti-Parkinsonism drugs						
State Total	12.8301	-0.2923	9.7255	-43.4499	36.5536	12.0843
Aged	20.3104	4.3391	14.2565	-45.2487	49.6208	5.4931
Blind/Disabled	0.4392	-6.0296	-2.1462	-32.3770	10.5288	25.9916
AFDC/Poverty Related - Adults	-51.1733	-52.8129	-6.3271	-61.3595	-2.1122	20.4366
AFDC/Poverty Related - Children	-73.6443	-75.7394	10.8089	-82.3499	-1.6636	28.1819

Appendix Table 9

State Summary of Decomposition of Change in

Drug Expenditures, 1990-1992

APPENDIX TABLE 9

ARKANSAS

STATE SUMMARY OF DECOMPOSITION OF CHANGE IN DRUG EXPENDITURES
1990 - 1992

Eligibility Category	Total Drug Expenditures	Expenditures Net of Rebate	FDB Prices	Use Rate (Users as % of Enrolled)	Intensity (Rxs per User)	Medicaid Enrollment
State Total	9.38	-10.15	11.30	-12.66	-2.74	15.41
Aged	3.85	-14.92	11.41	-11.99	-0.96	5.49
Blind/Disabled	12.81	-8.27	11.41	-17.58	-5.11	25.99
AFDC/Poverty Related - Adults	0.29	-17.54	7.69	-22.05	-5.87	20.44
AFDC/Poverty Related - Children	36.95	17.16	13.00	1.21	-4.32	28.18

GEORGIA

STATE SUMMARY OF DECOMPOSITION OF CHANGE IN DRUG EXPENDITURES
1990 - 1992

Eligibility Category	Total Drug Expenditures	Expenditures Net of Rebate	FDB Prices	Use Rate (Users as % of Enrolled)	Intensity (Rxs per User)	Medicaid Enrollment
State Total	27.02	1.23	-12.69	-8.91	-2.02	23.30
Aged	13.29	-9.45	11.71	-10.78	-2.96	9.99
Blind/Disabled	26.46	0.12	14.26	-9.13	-1.82	22.59
AFDC/Poverty Related - Adults	29.56	2.33	10.41	-20.82	-4.32	46.57
AFDC/Poverty Related - Children	88.03	51.63	14.69	11.12	-2.04	49.86

INDIANA

STATE SUMMARY OF DECOMPOSITION OF CHANGE IN DRUG EXPENDITURES
1990 - 1992

Eligibility Category	Total Drug Expenditures	Expenditures Net of Rebate	FDB Prices	Use Rate (Users as % of Enrolled)	Intensity (Rxs per User)	Medicaid Enrollment
State Total	56.60	23.87	16.43	1.12	4.39	29.17
Aged	37.69	9.98	15.90	-0.94	6.29	14.19
Blind/Disabled	56.33	22.81	17.71	0.82	1.28	26.48
AFDC/Poverty Related - Adults	73.39	34.40	14.32	-3.62	1.85	48.23
AFDC/Poverty Related - Children	129.68	83.52	17.02	19.07	3.62	63.87

APPENDIX TABLE 9

IOWA

STATE SUMMARY OF DECOMPOSITION OF CHANGE IN DRUG EXPENDITURES
1990 - 1992

Eligibility Category	Total Drug Expenditures	Expenditures Net of Rebate	FDB Prices	Use Rate (Users as % of Enrolled)	Intensity (Rxs per User)	Medicaid Enrollment
State Total	34.75	7.67	21.36	-0.26	4.11	12.23
Aged	27.17	2.93	27.63	-2.87	3.47	8.31
Blind/Disabled	42.19	13.04	18.38	-0.14	3.70	18.02
AFDC/Poverty Related - Adults	30.32	-0.28	12.50	2.05	3.34	7.73
AFDC/Poverty Related - Children	47.68	19.23	15.63	6.96	1.83	16.68

MISSOURI

STATE SUMMARY OF DECOMPOSITION OF CHANGE IN DRUG EXPENDITURES
1990 - 1992

Eligibility Category	Total Drug Expenditures	Expenditures Net of Rebate	FDB Prices	Use Rate (Users as % of Enrolled)	Intensity (Rxs per User)	Medicaid Enrollment
State Total	72.30	35.70	12.25	21.46	9.48	15.10
Aged	59.45	26.83	12.62	19.59	10.35	7.97
Blind/Disabled	88.88	48.50	11.99	26.85	9.12	21.71
AFDC/Poverty Related - Adults	70.52	28.36	10.82	20.80	7.45	13.01
AFDC/Poverty Related - Children	84.30	45.77	12.72	9.07	6.72	29.58

NEW HAMPSHIRE

STATE SUMMARY OF DECOMPOSITION OF CHANGE IN DRUG EXPENDITURES
1990 - 1992

Eligibility Category	Total Drug Expenditures	Expenditures Net of Rebate	FDB Prices	Use Rate (Users as % of Enrolled)	Intensity (Rxs per User)	Medicaid Enrollment
State Total	63.65	29.03	14.37	1.71	3.24	36.60
Aged	48.44	18.67	13.94	9.26	3.58	12.83
Blind/Disabled	61.68	26.12	15.53	-10.09	5.46	47.13
AFDC/Poverty Related - Adults	114.76	62.67	12.62	-3.40	-2.80	85.73
AFDC/Poverty Related - Children	121.15	76.01	14.45	12.23	-4.80	73.53

UTAH

STATE SUMMARY OF DECOMPOSITION OF CHANGE IN DRUG EXPENDITURES
1990 - 1992

Eligibility Category	Total Drug Expenditures	Expenditures Net of Rebate	FDB Prices	Use Rate (Users as % of Enrolled)	Intensity (Rxs per User)	Medicaid Enrollment
State Total	58.28	23.90	15.85	4.74	-1.28	27.77
Aged	33.76	4.70	15.87	0.24	-1.33	11.35
Blind/Disabled	58.82	24.09	17.62	1.18	-2.73	31.98
AFDC/Poverty Related - Adults	61.91	23.98	12.81	6.02	1.96	26.77
AFDC/Poverty Related - Children	97.39	58.94	15.64	21.61	-4.70	43.72

WASHINGTON

STATE SUMMARY OF DECOMPOSITION OF CHANGE IN DRUG EXPENDITURES
1990 - 1992

Eligibility Category	Total Drug Expenditures	Expenditures Net of Rebate	FDB Prices	Use Rate (Users as % of Enrolled)	Intensity (Rxs per User)	Medicaid Enrollment
State Total	53.07	17.01	15.89	1.13	0.02	26.02
Aged	34.19	4.21	17.24	-1.13	1.15	11.00
Blind/Disabled	63.10	25.76	15.33	0.77	-0.30	36.00
AFDC/Poverty Related - Adults	46.19	10.51	14.35	0.13	-0.72	26.79
AFDC/Poverty Related - Children	68.69	35.39	16.01	10.53	-1.39	33.65